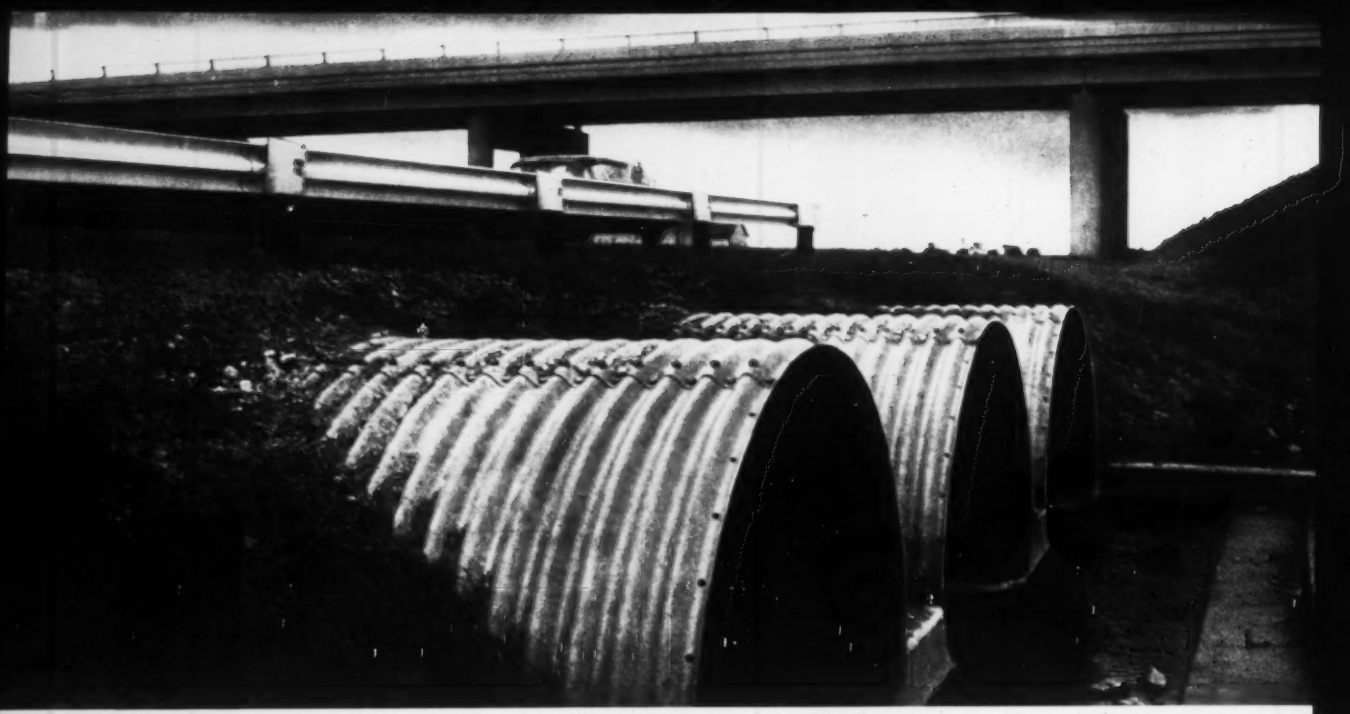
ENGINEERING NEWS-RECORD

Tokyo dome: A complex job goes up in a hurry p.34

A McGRAW-HILL PUBLICATION

STEVENS RICE
UNIV MICROFILMS INC EDI
513 N FIRST ST
ANN ARBOR MICH



Three lines of Armco MULTI-PLATE® Pipe-Arch provide waterway for creek crossing new relocated freeway in Ohio.

Highway design is 50 years apart, yet . . .

Armco Drainage Pipe serves both relocated freeway and old highway

A relocated modern four-lane freeway now replaces the original 1907 highway. On both, Armco Corrugated Metal Drainage Structures were installed. The old road still carries local traffic, and the 50-year-old Armco Pipes are in good condition. On the new freeway, Armco Pipe again met all requirements.

This story is being repeated all over the country. *Proved durability* is influencing selection of Armco Drainage Structures for the country's newest highways, freeways and expressways.

Whatever the problem—capacity, limited headroom, strength, flexibility, durability—it's likely you'll find an easy and economical solution with one of the many types of Armco Drainage Structures.

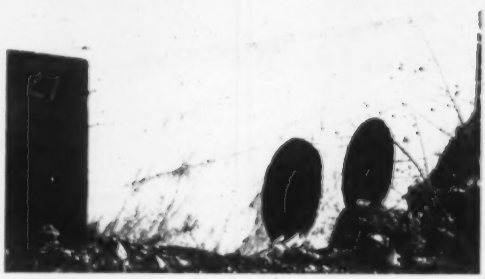
For a quick, concise picture of the complete line of Armco Drainage Structures, send in the coupon for our new folder. Armco Drainage & Metal Products, Inc., 4389 Curtis Street, Middletown, Ohio.

Armco Drainage & Metal Products, Inc.
4389 Curtis Street, Middletown, Ohio

Send me FREE copy of new 6-page data folder on Armco Corrugated Metal Drainage Structures.

Name

Address



Taken in 1923, this photo shows twin Armco Pipes installed in original highway in 1907.

ARMCO DRAINAGE & METAL PRODUCTS

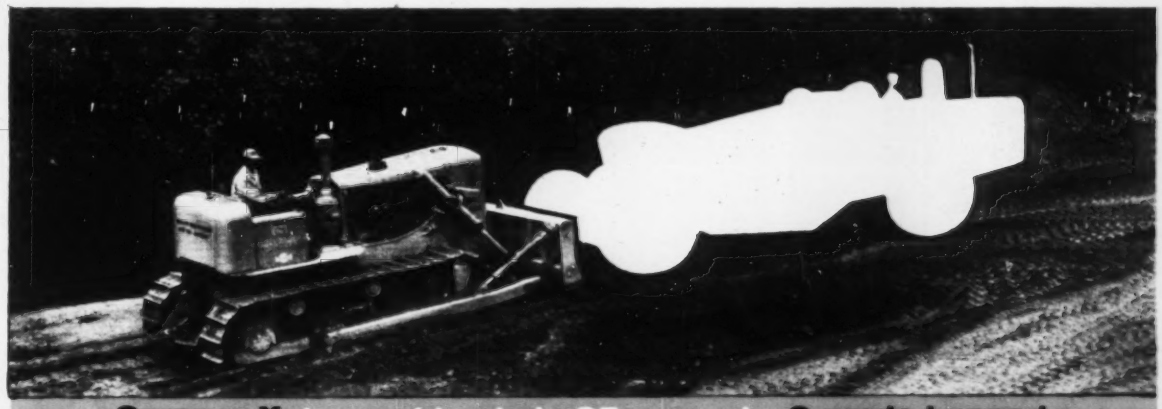
Subsidiary of ARMCO STEEL CORPORATION

OTHER SUBSIDIARIES AND DIVISIONS: Armco Division • Sheffield Division • The National Supply Company
The Armco International Corporation • Union Wire Rope Corporation • Southwest Steel Products

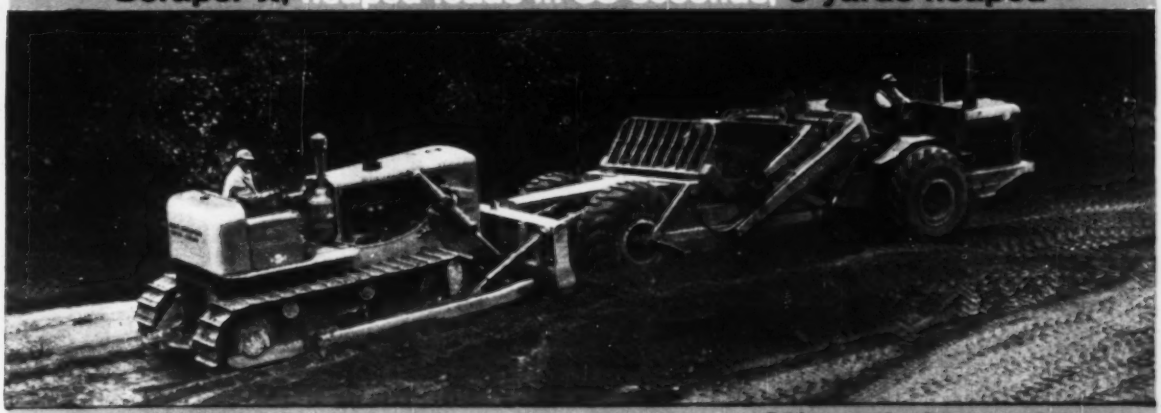
Same cut... same pusher
5% more dirt in 42% less time

DAY IN...DAY OUT, THIS ALLIS-CHALMERS 9½-YARD TS-160 OUTWORKS ITS LEADING COMPETITOR...AND DELIGHTS ITS OWNER*

This is no demonstration setup. It's a road job* where these two self-propelled scrapers worked every day . . . push-loaded by the same Allis-Chalmers HD-16 torque converter tractor. That made every loading cycle about as identical as they'll ever get. And hour after hour, the TS-160 moved out of the cut with a heaped load in an average of 42% less time than its 9-yard companion of another make. *This is extra work power you can turn into profit!*



Scraper X, heaped loads in 35 seconds, 9 yards heaped



TS-160, heaped loads in 20 seconds, 9½ yards heaped

* Further details on request

You may be surprised . . . may even challenge these facts. But facts they are, and we invite you to check them on *your* job, with *your* stop watch. Call your nearby Allis-Chalmers dealer now. He'll provide the TS-160 . . . when and where you say. *Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wis.*

...move ahead with **ALLIS-CHALMERS**...power for a growing world

PRESTRESSED

Placing of Amdek hollow box girders by means of *Richmond* Lifting Inserts with loads spread and equalized.

Lifting Inserts for Beams & Girders

Increased use of Prestressed Beams and Girders has led to the development of special inserts for lifting these units from casting beds, and placing them in their final position on the job.

Richmond Screw Anchors can be used where the mass of concrete provides sufficient distribution in width and depth to develop the strength.

Tyloops are used where the width and depth are sufficient for proper anchorage, where the unit has to clear reinforcing steel or other obstructions. Tyloops can be made in special shapes.

Extended Coil Lifting Tyscrus and 4 Strut Lifting Tyscrus are especially designed for thin walled Hollow Girders where the load distribution must be placed in the compression area of the prestressed girder.

All of these Lifting Inserts have actual ultimate strengths of at least twice their working loads in concrete at required lifting strength.

SCAB Richmond Screw Anchor & Bolt Assembly.

LT2E Lifting Tyscru with Extended Coil

LT4 4 Strut Lifting Tyscru

LE Lifting Eye Bolt

TL4F 4 Strut Tyloop Flared

For more information about these and other Richmond Lifting Inserts send for the Richmond Data Book on Lifting Inserts. And if you have any specific concreting problems ask us about them.

INSIST ON RICHMOND AND BE SURE IT'S RICHMOND

Richmond SCREW ANCHOR CO., INC.

816-838 LIBERTY AVE BROOKLYN 8, N.Y.

315 SOUTH FOURTH ST. ST. JOSEPH, MO.

ENGINEERING NEWS-RECORD

EIGHTY-FIFTH YEAR OF PUBLICATION

ABP ABC MEMBER

Editorial Offices, 330 W. 42nd St., New York 36, N. Y.
New York - LOngacre 4-3000; Chicago - MOhawk 4-5800; San Francisco - DOuglas 2-4600
Washington - REpublic 7-6630

Editor, Waldo G. Bowman

Senior Staff Editor, Arthur J. Fox, Jr.
Managing Editor, Edward H. DeHart
Senior Editor, Frederick S. Merritt

Highways, Airports—Transportation
Edward M. Young, Jr., Marc Leggiero, Joseph F. Wilkinson

Buildings, Bridges—Structures
Frederick S. Merritt, Marianne Stern, David B. Hill

Rivers Sanitation—Water Resources
James B. Sullivan

Finance, Labor—Management
Robert J. Stinson, Charles J. Harding, Joel Roth

Regional Editors
J. Roland Carr, *Chicago, 520 N. Michigan Ave.*
Martha Alexander, *Staff Assistant*
Lauress L. Wise, *San Francisco, 68 Post St.*

Copy—Production
Barbara Lamb, Irwin Landau, William W. Jacobus, Jr., Evelyn Steple, John C. Greenough

Presentation
Harry W. Jensen, Robert G. Young

Statistics, Prices, Costs—Business News
Elsie Eaves, *Manager*
Julia Mahoney, *Construction Reports*
Mildred Wetzel, Marian Sciorra, Diane Tartaglia, Marie Moravsik, Elaine Chomyak, Elizabeth Werra, Eleanor Queret
James Webber, Ruth Carlson, *Economics*
Evelyn Huber, Charlotte Foster, *Statistics*
Bertha Herrmann, *Unit Prices*
Patrick Sheehan, *Prices, Wages, Indexes*

Editorial Research and Indexing
Helen Regensburg, Eva Gierat, Rene Hay, Nancy Moore, Leah Shanks Edith Feinberg

Consulting Editors: Van Tuyl Boughton, Nathan A. Bowers

Advertising Sales Manager: Donald S. Robertson

Circulation Manager: Edward F. Bressler

Washington Bureau, National Press Bldg., Washington 4, D. C.: George B. Bryant, Jr., Chief, Alan Adams, Glen Bayless, Roy Calvin, Ernest Conine, Anthony DeLeonardis, John Donaldson, Jay Flocken, Boyd France, Donald Loomis, Gladys Montgomery, Arthur More, Seth Payne, Dean Reed, Morton Reichek, Caroline Robertson, Vincent Smith.

Domestic News Bureaus: Atlanta—801 Rhodes-Haverty Bldg., B. E. Barnes, Chief, Frances Ridgway; **Chicago**—520 N. Michigan Ave., Stewart Ramsey, Chief, Elizabeth Wilson; **Cleveland**—55 Public Square, Arthur Zimmerman, Chief, Violet Forsha; **Dallas**—901 Vaughn Bldg., Marvin Reid, Chief, Lorraine Smith, Alice Mann; **Detroit**—856 Penobscot Bldg., Donald MacDonald, Chief, Sally Ayling, John Durbrick; **Los Angeles**—1125 W. 6th St. Kemp Anderson, Jr., Chief, Michael Murphy, Jack Meyer, Marvin Petal; **San Francisco**—68 Post St., Jenness Keene, Chief, Donald Winston; **Seattle**—6040 Fifth Ave., N.E., Ray Bloomberg.

Foreign News Bureaus: London—John Shinn; **Paris**—Robert Farrell; **Mexico City**—Peter Weaver; **Bonn**—Morrie Helitzer; **Beirut**—G. M. Marashian; **Tokyo**—Sol Sanders; **Caracas**—John Pearson; **Moscow**—Robert Gibson.

Correspondents: In 70 principal U. S. cities and 70 cities throughout the world.

Director of News Bureaus: John Wilhelm; Managing Editor, Margaret Ralston.

McGraw-Hill Economics Department: Dexter M. Keezer, Director; W. H. Chartener.

Publisher, Robert F. Boger

ENGINEERING NEWS-RECORD, Vol. 163, No. 9, AUGUST 27, 1959

Published weekly by McGraw-Hill Publishing Company, James H. McGraw (1860-1948), Founder. Publication Office, 99-129 North Broadway, Albany 1, N. Y. See panel below for directions regarding subscriptions or change in address. **Executive, Editorial, Advertising and Circulation Offices, McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y.** Donald C. McGraw, President; Joseph A. Gerardi, Executive Vice President; L. Keith Goodrich, Vice President and Treasurer; John J. Cooke, Secretary; Nelson Bond, President, Publications Division; Shelton Fisher, Senior Vice President; Ralph B. Smith, Vice President and Editorial Director; Joseph H. Allen, Vice President and Director of Advertising Sales; A. R. Venezian, Vice President and Circulation Coordinator. **Subscriptions are solicited only from persons with identifiable commercial or professional interests in construction and building. Position and company connection must be indicated on subscription orders.** United States subscription rate for individuals in the field of this publication $6.00 per year, single copies 50 cents; foreign $20 per year, payable in advance. Second Class mail privileges authorized at Albany, New York. Printed in U.S.A.

Title registered in U.S. Patent office. Copyright 1959 McGraw-Hill Publishing Co., Inc. All Rights Reserved.

UNCONDITIONAL GUARANTEE: We agree, upon request to our New York office, direct from paid up subscribers, to cancel any subscription if ENGINEERING NEWS-RECORD's editorial service is unsatisfactory, and will refund the proportionate subscription price of any unmailed copies.

SUBSCRIPTIONS: Send subscription correspondence and change of address to Subscription Manager, ENGINEERING NEWS-RECORD, 330 W. 42nd St., New York 36, N. Y. Subscribers should notify publisher *promptly of any change of address, giving old as well as new address, and including postal zone number,* if any. If possible enclose an address label from a recent issue of the magazine. Please allow one month for change to become effective.

Postmaster: Please send Form 3579 to Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

How an old story... told a new way... CREATES MORE BUSINESS FOR ENGINEERS

A SUPPLIER PUTS A TECHNICAL STORY IN POPULAR TERMS TO SPUR CONSTRUCTION OF NEW WATER SUPPLY SYSTEMS

This could be the best year ever to win contracts for new municipal water systems. Towns and cities everywhere may come to the point of inviting bids —with bond issues assured by alerted voters. Why?

Partly because *35 million people are now learning about the danger of water shortages;* and are more likely to act now than ever before.

For engineers who design and construct water systems, the water problem is an old story. But for most of America, it's still new. That's why the Cast Iron Pipe Research Association decided to talk to the country—as well as to engineers—in stating its case this year.

Since February, it has advertised in Reader's Digest. It has offered a free booklet, telling how to get local action on the problem. Already, it has had thousands of requests—each one signifying that another citizen, often a highly influential one, has been aroused to action!

Consider the enormous opportunity this unusual campaign offers engineering firms:

- Never before has the need been explained to 35 million people (more than the number that read any other magazine or newspaper, more than watch the average nighttime television show).
- Never before has it been explained to so many of the *right* people. Nothing can match the Digest's audience in terms of education, income, position — and other qualities that give people influence in their communities.

Aided by this stimulant, engineering firms can contract new business worth millions. And, in the process, national advertising will demonstrate once again—and in a medium ideally suited to the job—how it can serve the nation while it serves business as well.

People have faith in

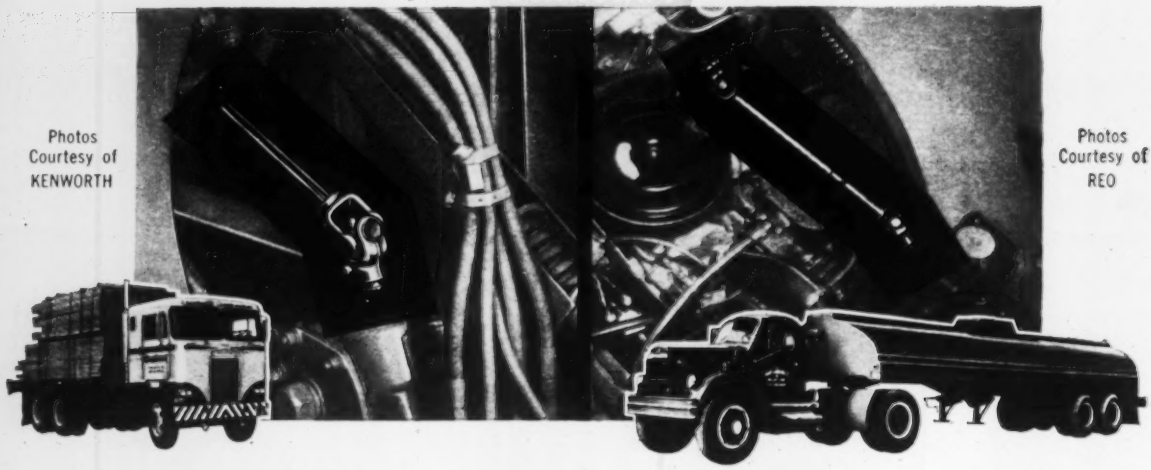
Reader's Digest

Largest magazine circulation in the U.S.
Over 11,750,000 copies bought monthly

Photos Courtesy of WHITE

Photos Courtesy of GMC

To "take power steering around corners" rely on the Keystone of Quality...



Photos Courtesy of KENWORTH

Photos Courtesy of REO

...select BLOOD BROTHERS Jointed Steering Shafts

On power steering assemblies for famous-make trucks, Blood Brothers Universal Joints "take power around corners" smoothly and dependably. They're widely used on manual steering assemblies too . . . for road-building and construction machines, farm tractors and self-propelled implements.

When you need universal joints to "take power around corners" — or provide for drive shaft flexibility — be sure to consult Rockwell-Standard. Our engineers will gladly assist you . . . and their experience may save money on your project.

K-1C

L6S, L6N

ROCKWELL-STANDARD CORPORATION

ROCKWELL R STANDARD BB UNIVERSAL JOINTS

Blood Brothers Universal Joints

ALLEGAN, MICHIGAN

© 1959, Rockwell-Standard Corp.

B.F.Goodrich

B.F.Goodrich tires handle the tough jobs at mammoth Niagara Power Project

UNDER construction at Niagara Falls, N.Y., are the powerhouse, waterways, reservoir and intake—all part of the gigantic $720-million Niagara Power Project. Shown above: site of 110′ x 50′ excavation for one of the twin, 46′-wide, covered intake conduits. On the job: a fleet of trucks equipped with B.F.Goodrich tires and owned by Merritt-Chapman & Scott Corporation, largest contractor on the project.

These trucks haul ton after ton of rock and overburden from the excavation to the spoils area, work round-the-clock, 6 days a week, under severe operating conditions. In spite of this, B.F.Goodrich Rock Service tires are still going strong after 3,135 hours of service!

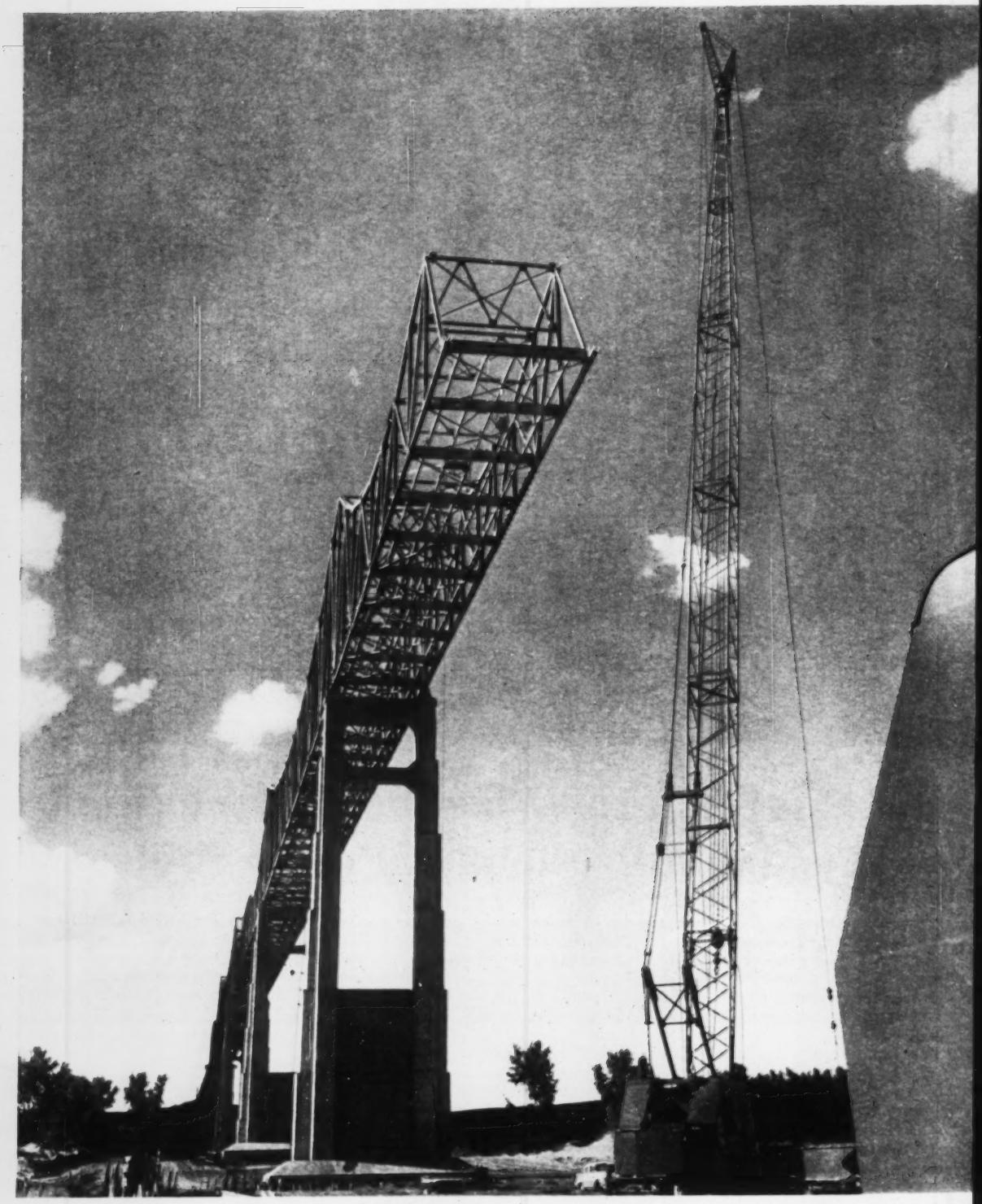
The Rock Service tread is specially-compounded to resist rock cuts and snags. Massive double-chevron cleats give extra traction in forward or reverse. Thanks to the special B.F.Goodrich FLEX-RITE NYLON cord body, Rock Service tires are virtually immune to heat blowouts and flex breaks. Result: you get longer tire life—more retreadable tires!

Other B.F.Goodrich products at work on the Niagara Power Project are conveyor belting, air hose, protective clothing and footwear. Maintenance and service programs for tires and industrial products are also in operation—all part of the new B.F.Goodrich Unified Contractor Program. No matter what your off-the-road job, B.F.Goodrich is ready to serve you—and help you save. Your Smileage dealer is listed under Tires in the Yellow Pages of your phone book. *The B.F.Goodrich Co., Akron 18, Ohio.*

Specify B.F.Goodrich Tubeless or tube-type tires when ordering new equipment

Smileage!

B.F.Goodrich *off-the-road tires*



$9,000,000 worth of bridges at Forest City and Mobridge, S. D.

Designers: Bridge Division of the South Dakota Department of Highways; Basic design by Bridge Engineer, K. R. Scurr. Final design and details by Missouri River Bridge Section of the Bridge Division, consisting of Roy W. Johnson, Chief Designer, and Structural Designers, Allen Fladeboe and Elek Kirchner.

Resident Engineer: K. O. Long, for foundations

Substructure Contractor: Massman Construction Co., Kansas City, Mo.

Superstructure Contractor: John F. Beasley Co., Chicago, Muskogee, Dallas

Superstructure Steel Fabricator:
Vincennes Steel Division of Industrial Enterprises, Inc., Vincennes, Ind.

Girder Spans, Mobridge Bridge:
Mississippi Valley Structural Steel Co.

Biggest bridges between the Mississippi and the West Coast built solidly on USS Steel H-Piles

Bridges span South Dakota's Oahe Reservoir–cost less than estimated

THESE TWO BRIDGES at Forest City and Mobridge are hailed as the largest single engineering and construction projects ever carried on in South Dakota, with the exception of Oahe and Ft. Randall dams. The bridges are larger than any between the Mississippi River and the West Coast.

The Forest City Bridge is 4,583 feet long and the 26-foot roadway is 165 feet above the Missouri River bed. The total cost is approximately $4,715,000.

The Mobridge structure is 5,059 feet long, with a 26-foot roadway 140 feet above the river bed. The approximate cost is $4,471,000.

Both bridges were constructed at costs substantially lower than original estimates. A major factor contributing to maximum economy was an advance purchase by the state of about 5,500 tons of USS Steel H-Piles. The immediate availability of these pilings at the sites had a considerable influence on the bidding for both projects.

At the Forest City site, the 14-inch, 102-lb. USS H-Piles were driven to a maximum depth of 140 feet into Pierre shale using a steam hammer with 30,000 foot-pounds of energy. At the Mobridge site, the maximum length of piling is about 115 feet.

USS Steel H-Piles proved structurally and economically sound

The use of 5,500 tons of USS Steel H-Piles on these projects is further proof of their ability to provide a secure means of supporting foundations in unstable materials. They are readily handled in the field by ordinary equipment, are easy to splice, eliminate jetting, and withstand rough handling.

The great capacity of USS H-Piles for high unit loads, both vertical and horizontal, means fewer piles and fewer driving operations for a given load.

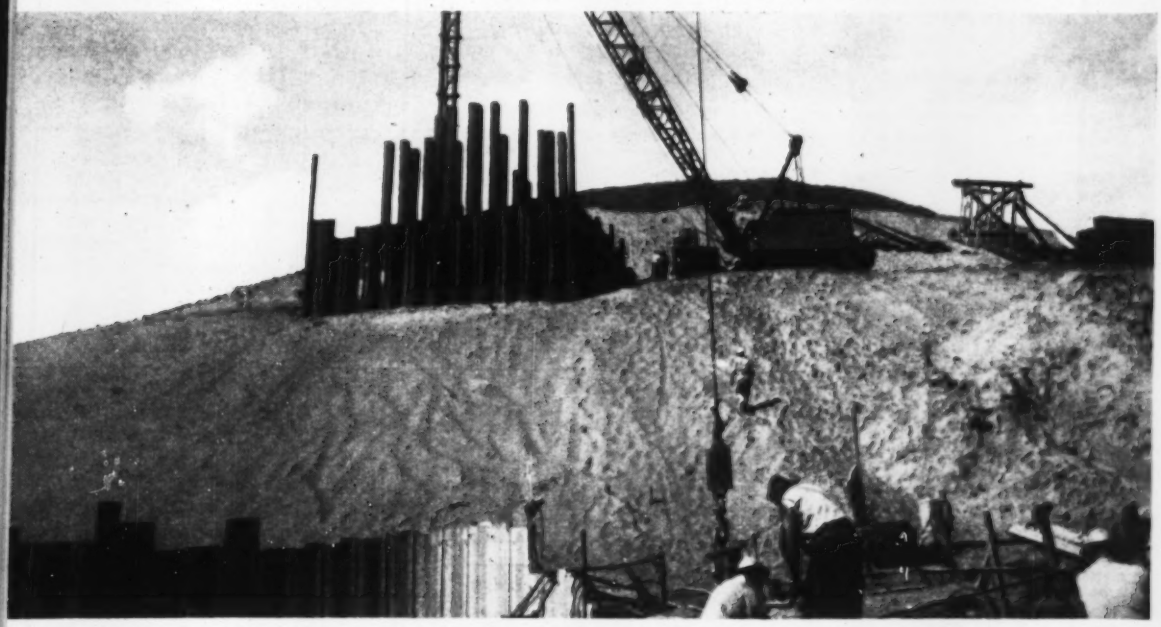
For more detailed information about the lasting safety and economy of USS Steel H-Piles for every type of foundation job, contact our nearest sales office.

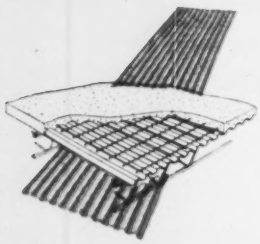
USS is a registered trademark

United States Steel Corporation—Pittsburgh
Columbia-Geneva Steel—San Francisco
Tennessee Coal & Iron—Fairfield, Alabama
United States Steel Export Company

United States Steel

Mobridge and Forest City Bridges are similar in design and together take more than 8 thousand tons of fabricated steel and 5,500 tons of USS H-Piles.





Short-span concrete slabs cost less with Milcor Ribform

Ribbed high-tensile steel form is stronger than ordinary corrugated patterns

Ribform is a permanent, rigid base for concrete floor and roof slabs poured over spans up to 5′-0″.

It goes down fast—is easy to install over pipe trenches or in other inaccessible locations where it is impractical and expensive to strip wood forms. Temporary bracing of joists is unnecessary. Scaffolding is eliminated; Ribform is a safe working platform.

Ribform uses as much as 20% less concrete than flexible types of centering. The slab is poured and finished in one operation. The rigidity of Ribform permits monolithic finishing — eliminates costly topping.

See Sweet's, section 2h/In—or write for catalog 245 giving complete details.

MILCOR® Ribform

It pays... in many ways... to specify Milcor Steel Building Products

INLAND STEEL PRODUCTS COMPANY Member of the Inland Steel Family

DEPT. H, 4149 WEST BURNHAM STREET • MILWAUKEE 1, WISCONSIN • ATLANTA • BALTIMORE • BUFFALO CHICAGO • CINCINNATI • CLEVELAND • DALLAS • DENVER • DETROIT • KANSAS CITY • LOS ANGELES MILWAUKEE • MINNEAPOLIS • NEW ORLEANS • NEW YORK • ST. LOUIS.

RD-16R

Reader Comment

Frames Must Be Ductile

SIR—Since the City of Los Angeles is located in an active earthquake region, the Department of Building and Safety has always been on the alert to keep abreast of latest requirements for earthquake-resistant design of structures.

Two recent developments have intensified research in this field: (1) The Mexico City earthquake of 1957 gave engineers firsthand information on the action of major structures during an earthquake of considerable magnitude. (2) The unlimited Height Building Ordinance adopted by Los Angeles in 1958 requires a much more careful determination of earthquake resistance than the previous 13-story height limit required.

The Structural Engineers Association of California has for years been conducting research in the field of earthquake-resistant design. From this work has come numerous recommendations on which building codes are founded. Recently, the association set forth design requirements for multistory frames (ENR Mar. 19, p. 56).

Following through on this recommendation, Los Angeles now requires that the structural frame used to resist earthquake forces be composed of material having the ductility of structural steel. Applicable to all buildings over 13 stories or 160 ft in height, the new regulation states that materials or combination of materials not having the ductility or the energy-absorption qualities of ASTM A7 structural steel are not acceptable.

This is an important design requirement for engineers and architects throughout the U. S. who design buildings for Los Angeles.

G. E. MORRIS
Superintendent of Building
Department of Building and Safety
Los Angeles, Calif.

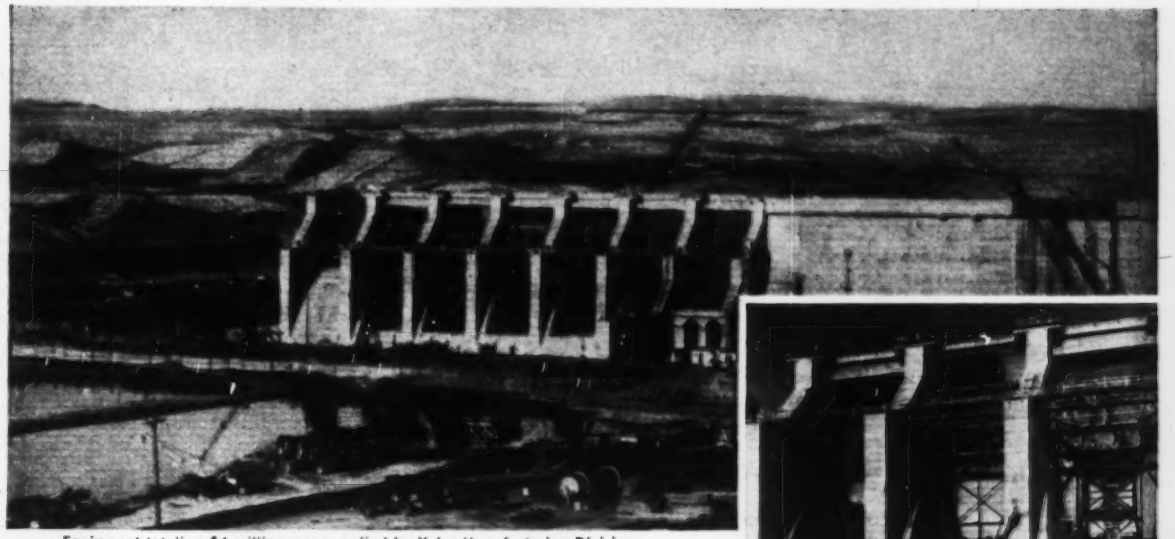
Against NY Rezoning

SIR—Permit me to take exception to your editorial, "Recognition and Public Service," (ENR April 30, p. 104).

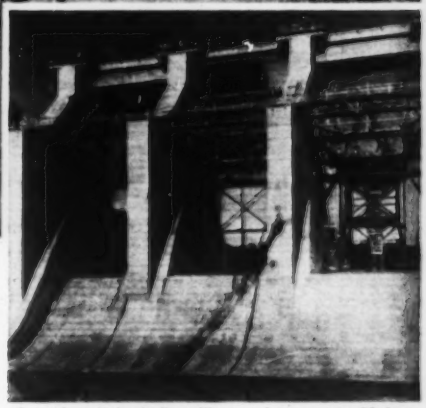
The proposed rezoning plan entirely ignores the fact that New York City, except for Richmond and parts in Queens, consists of built up areas. Existing structures do not conform to the proposed zoning plan. Hence to exe-

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

Providing the Steelwork for Today's Modern Dams



Equipment totaling $4 million was supplied by Yuba Manufacturing Division for the huge Ice Harbor Dam project on the Snake River, Washington.



Ten giant Yuba-built spillway tainter gates, 50 feet wide and five stories high, weigh 145 tons each.

From Forebay to Tailrace
Design · Fabrication · Erection

The giant radial gates shown here, the massive trash racks, the draft tube, traverse and intake bulkheads, and a number of other steel fabricated components totaling 44 in all, were produced by Yuba Manufacturing Division.

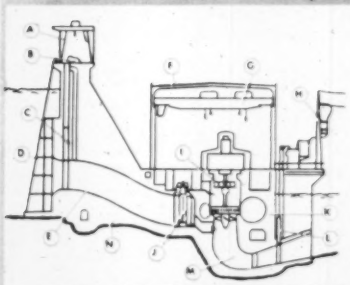
This enormous project of the Army Engineers is typical of the many dam construction jobs in which Yuba has been a major participant. The reasons: decades of experience in this specialized field; real know-how of its skilled personnel; large, fully-equipped production facilities—East and West.

Where user and contractor want relief from coordinating production, delivery and installation, they can call on Yuba to handle the complete job as a package responsibility—from forebay to tailrace—through design, fabrication, erection.

Ask for Bulletin No. HY-51, describing Yuba's hydroelectric equipment and services, or ask for a sales engineer to call.

Each radial gate was assembled at the plant, match marked, then disassembled and shipped on gondola cars to the site—four cars to a gate!

Call on Yuba for the complete package responsibility...



- A GANTRY CRANES
- B HOISTS
- C INTAKE GATES
- D TRASHRACKS & TRASH RAKES
- E CONDUITS, LINERS AND PENSTOCKS
- F STRUCTURAL FABRICATION
- G BRIDGE CRANES
- H POWERHOUSE STRUCTURES
- I PIT LINERS
- J BUTTERFLY VALVES
- K SPIRAL CASES
- L DRAFT TUBE GATES
- M DRAFT TUBES
- N STEEL REINFORCING BARS

Yuba designs and builds a wide range of equipment for engineered construction:

Bridges | Buildings—Structural | "Moveall" Earthmovers | Highway Program

Yuba Divisions Serving the Hydroelectric Industry

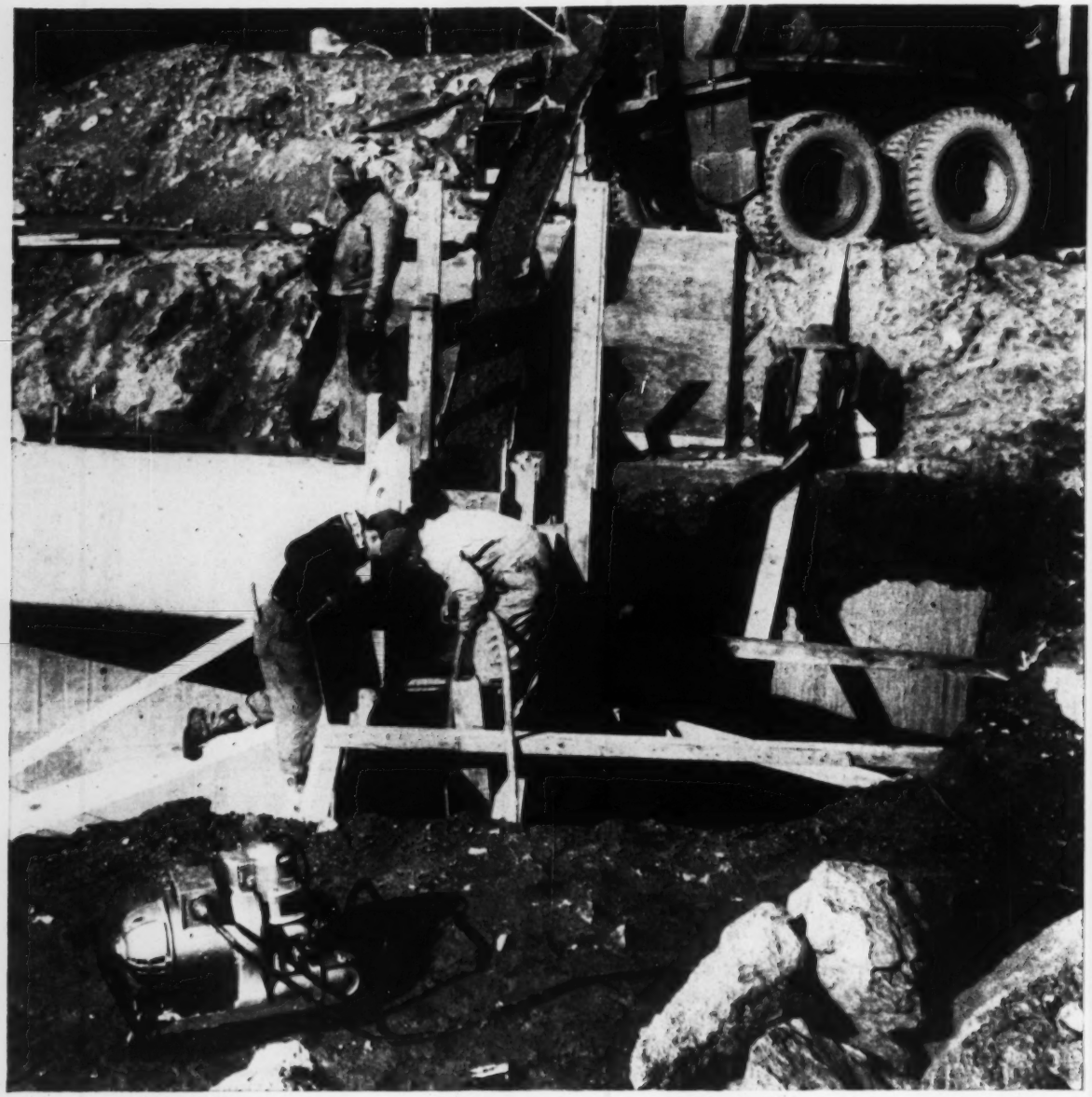
ADSCO DIVISION, Buffalo, N.Y. • JUDSON PACIFIC-MURPHY DIVISION, Emeryville, Calif. • SOUTHWEST WELDING & MANUFACTURING DIVISION, Alhambra, Calif. • YUBA CONSOLIDATED ERECTORS, INC., San Francisco, Calif. • YUBA MANUFACTURING DIVISION, Benicia, Calif.

YUBA CONSOLIDATED INDUSTRIES, INC.

351 California Street, San Francisco, Calif.

YUBA

Plants and Sales Offices NATIONWIDE



USED BY MEN WHO BUY EQUIPMENT FOR WHAT IT SAVES

How contractors cut costs

The picture tells the story . . . an interesting story to any cost-minded contractor. Look at it carefully. One man . . . is operating the Homelite Concrete Vibrator. He operates it with power from a Homelite Carryable Generator. Look at the picture again. The generator is set up for operation in a convenient spot. No special scaffolding is necessary. No extra expense involved. It's savings all along the line . . . savings in time, labor, and work. And it's savings with a bonus. Other men can use the generator at the same time to operate standard universal power tools or brilliant floodlights.

Ask for free on-the-job demonstration of how to save with Homelite Concrete Vibrators and Carryable Generators.

Homelite factory branches are located throughout the country. Your nearest one is as close as your phone. Call them or write for convincing demonstration or rapid service in any way.

HOMELITE
CARRYABLE
Concrete **VIBRATOR**
PUMPS • GENERATORS • BLOWERS • CHAIN SAWS

HOMELITE • A DIVISION OF TEXTRON INC., 1109 RIVERDALE AVE., PORT CHESTER, N. Y.
In Canada — Terry Machinery Co., Ltd.

Over Half a MILLION Square Feet 6 weeks *Ahead* of Schedule!

STEEL does it again!

Six Mississippi Valley Structural Steel Company Fabricating Plants and Three MVSS Erection Companies simultaneously build four gigantic sales distribution centers as much as 1,000 miles apart!

Here's an example of carefully coordinated MVSS engineering teamwork combined with the versatility and speed of steel construction.

Here's many construction dollars saved for the owner* and a faster return on his investment from earlier sales dollars.

Building? MVSS has complete fabricating and erection divisions in 7 cities. All divisions can be integrated just like this to rush your job through to swift completion *... anywhere ... anytime!*

*Name and address on request.

JUST OFF THE PRESS ...
SEND FOR YOUR *FREE* COPY!

Fascinating new book, "BUILD BETTER WITH STEEL", shows the flexibility and adaptability of STEEL as a tool of design, utility and enduring performance.

MAIL COUPON FOR YOUR FREE COPY or write today on your letterhead!

MISSISSIPPI VALLEY STRUCTURAL STEEL COMPANY
10 SOUTH BRENTWOOD BLVD.
ST. LOUIS 5, MISSOURI

Please send me without obligation my FREE copy of your new book: "*BUILD BETTER WITH STEEL*"

YOUR NAME _____

FIRM NAME _____

ADDRESS _____

CITY _____ ZONE ___ STATE _____

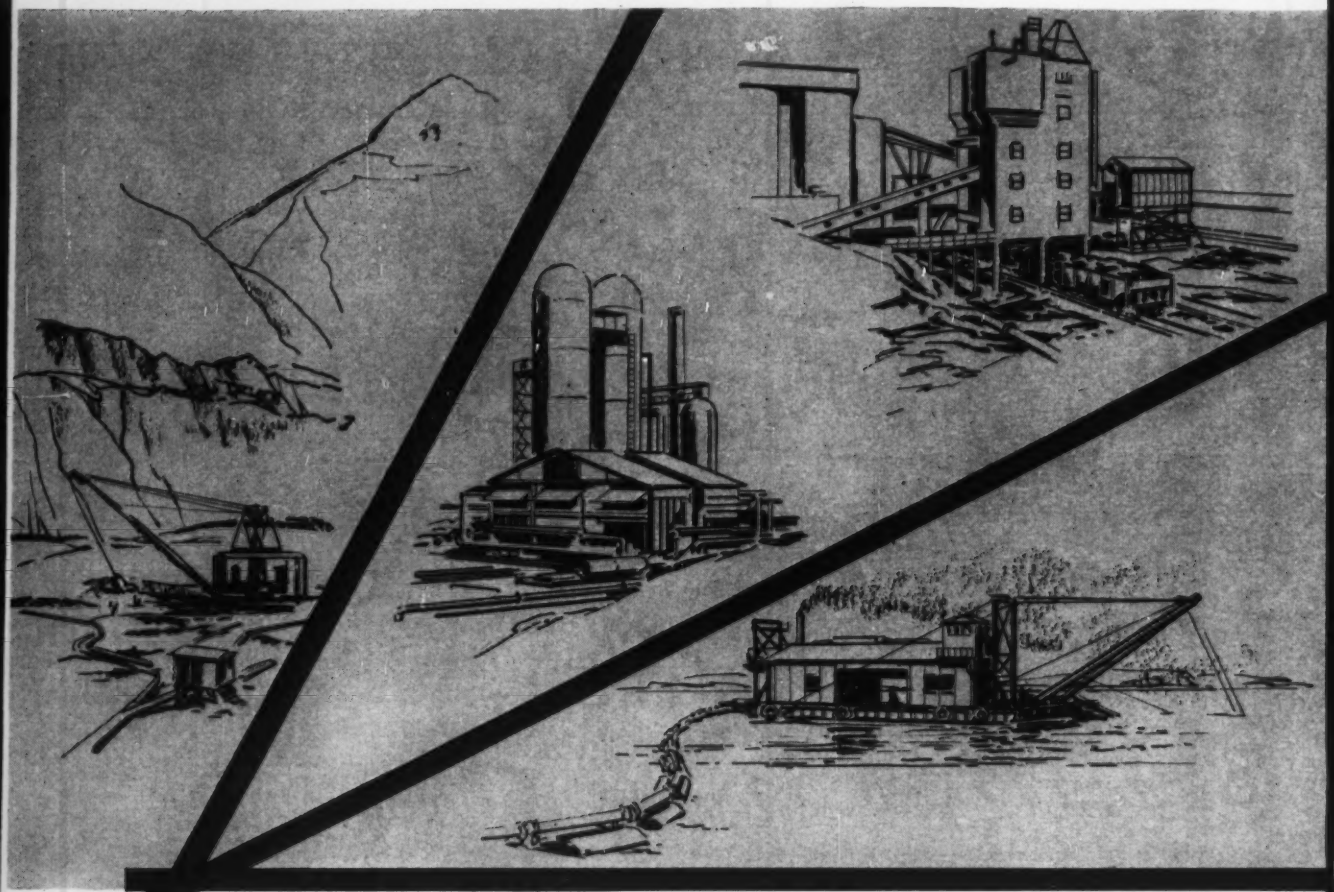
MISSISSIPPI VALLEY STRUCTURAL STEEL CO.

MV SS SERVICE

Fabrication Plants: Decatur, Ill. • St. Louis, Mo. • Melrose Park, Ill. • Flint, Mich. • Chattanooga, Tenn. • Lansing, Mich. Erection Bases: Rockford, Ill. • Chattanooga, Tenn. • Lansing, Mich.

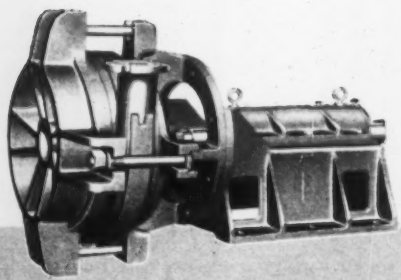
Where DEPENDABILITY counts in centrifugal pumps...

(and where doesn't it?)



more and more users depend upon

MORRIS



Type-RX Slurry Pump. A heavy duty, low speed slurry pump expressly designed to to handle abrasive slurries up to the maximum fluid consistency, under suction lift or positive head.

In our 95 years of building centrifugal pumps Morris engineers have overcome hundreds of problems caused by the substances being pumped or by the required speeds, heads, maintenance, and other factors. Elements such as these and their handling under specific conditions are taken into consideration in *every* Morris pump supplied you.

Morris pump dependability relies, of course, on the usual factors of metallurgy, design and precision manufacture. But it also stems from the broader base of balancing the working parts of the pump against the conditions under which it must operate. You, the user, reap the full benefit of — *Greater Dependability.*

• Let a specially trained Morris sales engineer help you select the "just right" pump for your job.

MORRIS
CENTRIFUGAL
PUMPS

MORRIS MACHINE WORKS • Baldwinsville, N.Y.

SALES OFFICES IN PRINCIPAL CITIES • EXPORT OFFICE: 50 CHURCH ST., NEW YORK 7, N. Y.

STRIPES...
For Outstanding SERVICE

"THE HOSE WITH THE STRIPE" . . . there's no mistaking it for any but GOODALL . . . and there's no substitute for it when you want to be sure of the **ultimate** in reliability and service. Whether it's the yellow stripe on "Subway", the black on "Hardrok" and "Inferno" or the green on "Newtype" . . . you know it identifies hose that has earned its reputation for faithful, profitable performance, on every kind of construction.

Red Cover
Yellow Stripe

"SUBWAY" AIR HOSE

America's best known hose for compressor lines to drills, drifters, jumbos.

Red Cover
Black Stripe

"INFERNO" STEAM HOSE

The burst-proof hose for pile driving and other heavy duty steam jobs.

Black Cover
Green Stripe

"NEWTYPE" SUCTION & DISCHARGE HOSE

For low-cost pumping operations—won't kink, buckle or collapse.

Yellow Cover
Black Stripe

"HARDROK" AIR HOSE

Wire Braid Construction—for the toughest, roughest drilling operations.

Contact Our Nearest Branch for Details and Prices

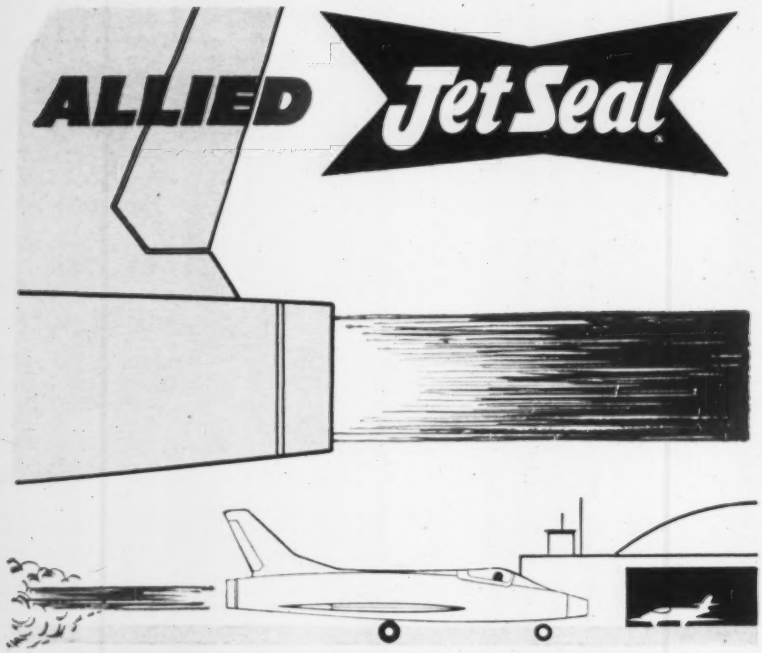
"If it's GOODALL, it MUST be Good!"

Standard of Quality—Since 1870

HOSE · BELTING · FOOTWEAR · CLOTHING
AND OTHER INDUSTRIAL RUBBER PRODUCTS

GOODALL *Rubber Company*

GENERAL OFFICES, MILLS and EXPORT DIVISION, TRENTON, N. J.
BRANCHES AND DISTRIBUTORS THROUGHOUT THE UNITED STATES.
IN CANADA: GOODALL RUBBER CO. OF CANADA LTD., TORONTO.



RESISTS JET BLASTS!!

Specifically engineered as a superior joint sealant that will resist THE TERRIFIC HEAT AND BLAST FORCES OF JETS—Allied JET SEAL, Product 9015M is also unaffected by jet fuel or other solvents.

JET SEAL 9015M is positive in adhesion, cohesion, resilience and ductility at low temperatures (−20°F). Compact application equipment, exclusively developed by Allied, automatically proportions, mixes and places the material in the joint. And, curing time is rapid—construction can be opened to ALL traffic in one hour.

Allied JET SEAL 9015M has no flow and is designed to outlast presently used J.F.R. materials by as much as 500%.

Jet Seal's 2 components are contained in easy-to-handle 5 gallon pails.

For further information on this major advance in sealants, write to:

ALLIED MATERIALS CORP.

PRODUCERS, REFINERS AND COMPOUNDERS OF SPECIAL ASPHALT PRODUCTS

ALLIED BUILDING • 5101 N. PENNSYLVANIA • P. O. Box 7103
39th St. Station • Oklahoma City 12, Oklahoma
Plants: Stroud, Okla. • Detroit, Mich. • Los Angeles, Calif.

. . . Reader Comment

cute this plan so that New York becomes pretty, we must demolish most of it.

The planners estimate it will take twenty five years to accomplish the rebuilding. But who will do it? Where will the billions of dollars come from? You cannot count upon private enterprise—what incentive is there to demolish a building and get only 60% floor space in return?

Aside from that, the proposed plan sets aside specific areas for particular development, it places a premium on land that may be desirable for, say, office building or manufacture. This will result in prohibitive land values. Indeed many of our present skyscrapers would never have been if we had such zoning laws.

As an engineer, I am always out for public service, wherever the public is truly to be served. But in this instance, it is obvious that the public will suffer strangulation of economic building development. Therefore, let me caution engineers from supporting this measure just because it has been prepared by an engineer, for it will reflect badly upon the whole profession.

PERRY W. ETKES
Consulting Engineer
New York City

Editor's Note:—The proposed zoning law for New York City would apply only to new structures—not those already standing.

For Your Calendar . . .

Wood Industries Conference, Portland, Sept. 10-12. Write: Louis P. Growney, Arrangements Committee, c/o Pacific Power & Light Co., 404 Public Service Building, Portland 4, Ore.

Institute of Traffic Engineers, annual meeting, Commodore Hotel, New York City, Sept. 13-17. Write: Institute office, 2029 K St. N. W., Washington 6, D. C.

Malleable Founders Society, industry meeting, Hotel Sheraton-Cleveland, Cleveland, Ohio, Sept. 18. Write: Malleable Founders Society, 781 Union Commerce Building, Cleveland 14, Ohio.

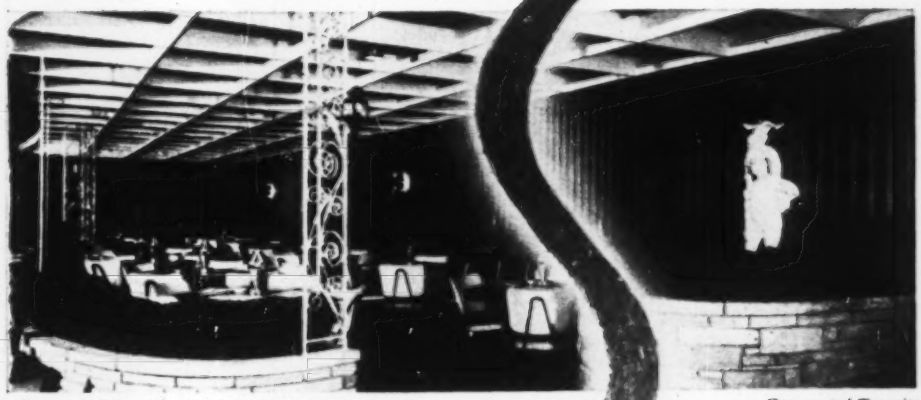
Public Works Congress and Equipment Show, Seattle, Wash., Sept. 20-23. Write: American Public Works Association, 1313 E. 60th St., Chicago 37, Ill.

Steel Founders' Society of America, fall meeting, The Homestead, Hot Springs, Va., Sept. 21-22. Write: Steel Founders' Society of America, 606 Terminal Tower, Cleveland 13, Ohio, attn. George K. Dreher, Market Development Director.

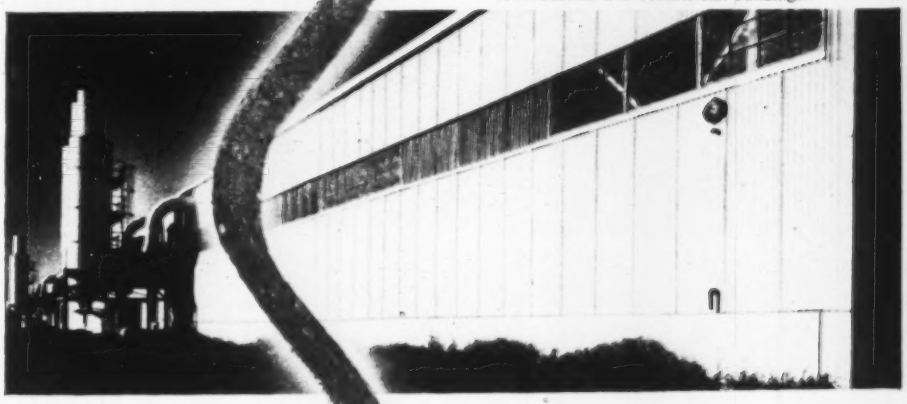
Conference on Planning and Design of Urban Helicopter Facilities, Institute of Aeronautical Sciences Building, 7660 Beverly Blvd., Los Angeles, Calif., Sept. 21-22. Write: Los Angeles Chamber of Commerce, Aviation Dept., 404 S. Bixel St., Los Angeles 54, Calif.

Associated General Contractors, midyear meeting of governing and advisory boards, Hotel Muehlebach, Kansas City, Mo., Sept. 21-23.

International Conference of Underground Town Planning and Construction, Brussels, Sept. 21-25. Write: Mr. P. LaVedan, 94 Rue St. Lazare, Paris 9, France.



Corrugated Transite sheets add eye appeal to lounges and terraces.



Corrugated Transite sheets provide rugged service for industrial and commercial buildings.

CORRUGATED *asbestos* TRANSITE®

...for eye appeal—

...for rugged service

Johns-Manville Corrugated Transite sheets wear like stone. They are made of two virtually indestructible materials—asbestos and cement. Corrugated Transite can't burn, can't rot, can't rust—requires practically no maintenance.

Use it inside or outside—paint it a color or take advantage of its innate stone-gray attractiveness—use it with other materials for contrast or variation—use it alone to emphasize the light and shadow of the corrugations.

Sheets of Corrugated Transite are 42″ wide (10 corrugations) in lengths up to 12′—cover big areas quickly with minimum framing. For full information on this versatile material, send for the free 32-page brochure, "Corrugated Asbestos Transite." Write to Johns-Manville, Box 158, New York 16, N. Y. In Canada, Port Credit, Ont.

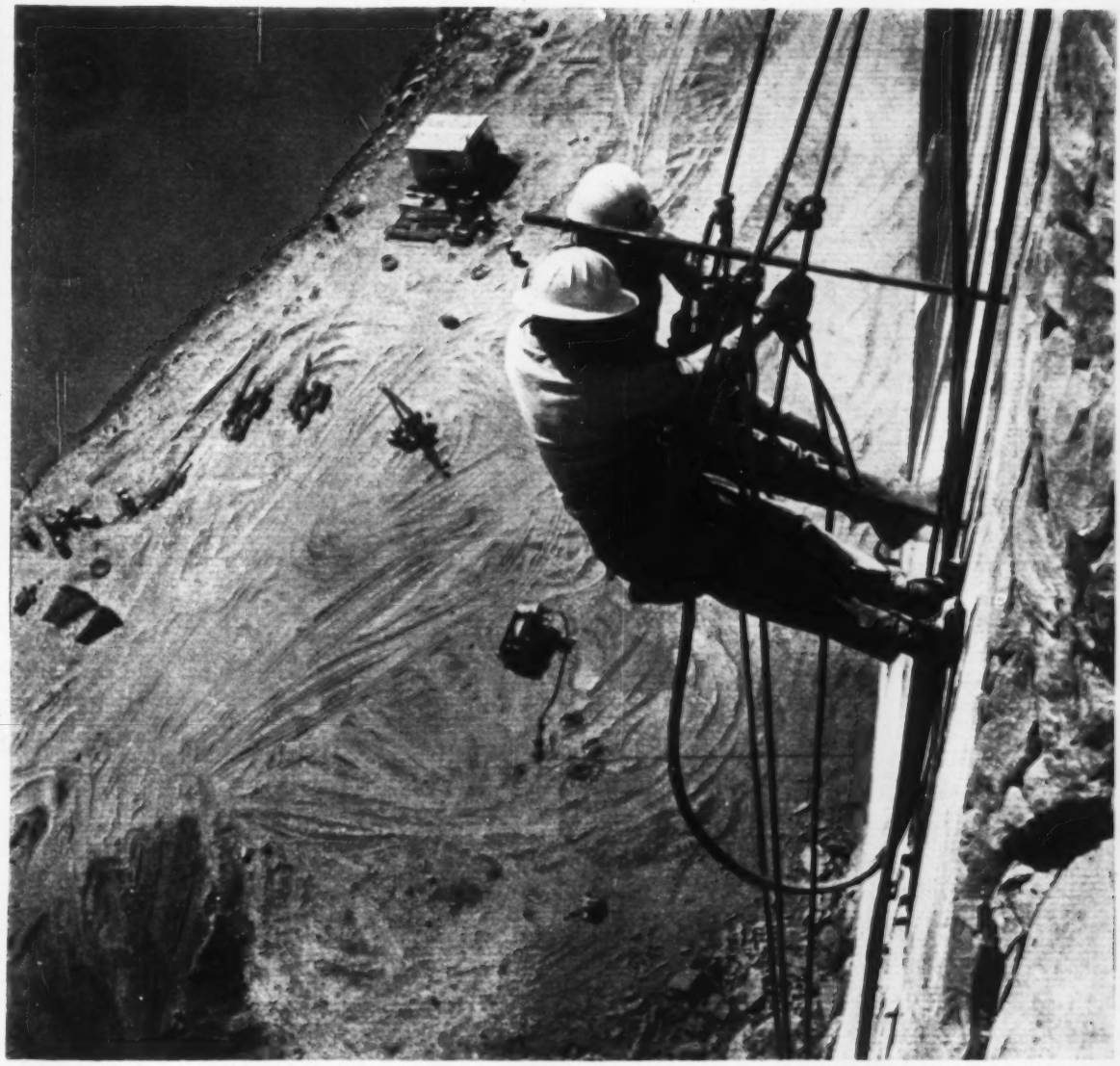
JOHNS-MANVILLE JM PRODUCTS

Nation's No. 1 Contract-Awarder:

In a recent 30-day period, *Construction Daily* listed contracts awarded by 167 companies in business and industry. Total value: $252,500,000. At last count, Business Week had *over 7,800 management subscribers in companies accounting for 90% of that $252,500,000.* When you seek a contract in business and industry, you seek it from the management man, the Business Week reader. *Advertise in Business Week.* BW reaches across all business and industry, offering you more management readership per advertising dollar than any other magazine in its field.

...the Management Man who reads Business Week

A McGraw-Hill Magazine — 330 West 42nd Street, New York 36.



Glen Canyon Dam will be built for the U.S. Bureau of Reclamation. *Prime contractor:* Merritt-Chapman & Scott Corp.

They bolted the face of this 700-ft cliff

This sheer canyon wall will soon form one side of Glen Canyon Dam which will arch 1500 feet across the Colorado River in Arizona. The dam when completed will store water to generate electric power for a five-state area. Here you see construction workers, hundreds of feet above the river, drilling holes in the rock face of the cliff with Bethlehem hollow drill steel.

After the holes are drilled, Bethlehem slotted rock bolts are installed. When the bolts are driven, a steel wedge, previously inserted in the slotted portion of each bolt, spreads the bolt ends to provide firm anchorage. The bolts clamp the layers of rock together, stabilizing them. Square anchor plates were used for additional support.

In addition to the slotted bolt, Bethlehem also makes a headed bolt for rock control. It has a ¾-in. diameter, and is used with a leaf-type expansion shell.

If you have a rock control problem, we'll gladly work with you in solving it. Just say the word, and we'll have a representative examine the site, and make recommendations. Our nearby sales office is at your service.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

IT'S NOT THE INITIAL COST

it's the upkeep...

Competitive bidding on water works projects has brought the price of comparable pipes of different specified materials to a nearly common level. Today, the important consideration for the buyer is not so much the first cost as the maintenance charges which continue throughout the life of the pipeline.

In any such comparison, the superiority of LOCK JOINT CONCRETE PRESSURE PIPE is demonstrated by the experience of hundreds of municipalities. For example, records of one of the country's largest industrial cities indicate only minor maintenance or repair charges in the last 10 years against more than 18 million inch feet of LOCK JOINT CONCRETE PRESSURE PIPE in its water works system.

Your city, too, can virtually eliminate maintenance expense, and **save many times the initial installation cost with Lock Joint Concrete Pressure Pipe.**

LOCK JOINT PIPE CO.

East Orange, New Jersey

Sales Offices: Chicago, Ill. • Columbia, S. C. • Denver, Col. • Detroit, Mich.
Hartford, Conn. • Kansas City, Mo. • Perryman, Md.

Pressure • Water • Sewer • REINFORCED CONCRETE PIPE • Culvert • Subaqueous

ENGINEERING NEWS-RECORD

Vol. 163, No. 9 August 27, 1959

Number of copies printed this issue 85,004

CONTENTS

NATIONAL AFFAIRS

Congress: Key Bills Still Hanging . . . 23
Earth Dam Stands Up Under Major Quake . . . 24
Preventing Another Failure . . . 26
Plant Has 10,000 Popout Windows . . . 27
India to Get Aluminum Industry . . . 27
Leapfrogging One Bridge Over Another . . . 28
College Offers Overseas Training . . . 32
Pumped Storage Hydro Job Bid . . . 32

FEATURES

Making Quick Work of a Complex Dome . . . 34
Powerhouse Stands Firm on Vibrated Soil . . . 36
Wahluke Siphon Irrigates 100,000 Acres . . . 42

INTERNATIONAL

VTOL Airliner Carries a Bridge . . . 49
Solar-Heated Water for Students . . . 49

NEW PRODUCTS

Neat, Trim Signals Direct Pedestrians . . . 52
Teardrop Curves Simplify Design Drawing . . . 52
Buildings Have Prefitted Connections . . . 52

MEN & JOBS

G. K. Leonard Retires From TVA . . . 51
B. L. Werner Directs Baltimore Public Works . . 51

BUSINESS & FINANCE

Steel: 30-Day Supply Left . . . 72
Public Works Trend Is Down . . . 74
Money-Short Delaware's "Gold-Mine" Bridge . . 74
Consultants Have Their Ups and Downs . . . 76
Hawaiian Cement Fight Ends in a Draw . . . 79

LABOR

AFL-CIO Mobilizes Forces . . . 80
To Train Plumbers: $90,000 . . . 81
B. C. Ironworkers End Strike . . . 81
ESA Offers Investment Opportunity . . . 81
Labor Law Urged for Canada . . . 82

Reader Comment . . . 8
Calendar . . . 14
Washington Observer . . . 21
Unit Prices . . . 54
Materials Prices . . . 59
Construction Reports . . . 60
Statistics, Indexes . . . 71
Editorials . . . 92

Back issues of ENGINEERING NEWS-RECORD *are generally available for the previous six months. Semiannual indexes will be sent on request.* ENGINEERING NEWS-RECORD *is also indexed in Industrial Arts Index and Engineering Index.*

THE CONSTRUCTION WEEK

CONTRACTOR SQUEEZE—Highway construction bid prices fell 2.7% in the second quarter, Bureau of Public Roads says. It was the largest quarterly drop since 1954. But the drop doesn't indicate a down trend in roadbuilding costs, says BPR. Rather, it "indicates continuance of a trend of stabilization in prices." Meanwhile, ENR's Construction Cost Index is at a record high.

PISCATORIAL PERVERSITY—Some fingerling salmon are apparently braving the turbines at Idaho Power Co.'s Brownlee Dam on the Snake River, disdaining a safer way downstream that cost Idaho Power Co. $5 million (ENR Aug. 14, 1958, p. 46). Fishery technicians speculate that small numbers of the fish now appearing in sampler traps just below the dam are swimming underneath a 120-ft-deep barrier net upstream, designed to keep them out of the turbines.

WASHOUT MARS TUNNEL TESTS—Big-scale flow tests attempted in one of Fort Randall Dam's flood control tunnels last week were only partly successful (ENR Aug. 20, p. 28). Before all the scheduled tests were completed, a strut supporting instruments inside the tunnel gave way to water somewhat more forceful than Army Engineers hydraulics experts had bargained for.

ALUMINUM BRIDGE STILL TO COME—The Reynolds-Baroni type sheet-aluminum bridge may finally win a clean bill of health in a report expected from New York University next month. Plans to build the first one in DeKalb County, Ala. (ENR Oct. 16, 1958, p. 25) were changed when Reynolds Metals Co. temporarily withdrew its offer. Reynolds reportedly found cracks due to stress concentrations around a few bolt holes after tests equivalent to 35-40 years of service. Redesigned components have since been under tests simulating 100 years of service.

GEYSER POWER ON COAST—Construction began last week on the first natural-steam-powered electric generating plant in this country. Magma Power Co. and Thermal Power Co. started work on wells that will supply geothermal steam for a 12,500-kw generating station to be installed by Pacific Gas & Electric Co. near Healdsburg, Calif.

An Opportunity With ENR

ENR is looking for a graduate engineer with up to five years of field or office experience in construction. He should be interested in building a career in construction journalism. Some writing ability is important. If you're interested, write a letter telling about yourself to: Waldo G. Bowman, Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

For any job . . . anywhere

"Faster-from-Foster" rental piling is safer, costs less

It's safer to rent steel-sheet piling from Foster, because you always get the exact sections and lengths the job needs. There's no risk of making do with substitute lengths. And, your only cost is a low rental rate directly chargeable to that job.

Just call your nearest Foster office and get "Faster from Foster" delivery of the sections and lengths you need anywhere in the U.S.A. (and in many foreign countries). Our nationwide warehouse and field stocks are always complete enough to take care of the biggest job requirements.

Foster stocks all standard piling sections in current use: straight, archweb, Z, corners, crosses, tees and fabricated connections. A call is all it takes for complete service on construction products, and "on-time" deliveries.

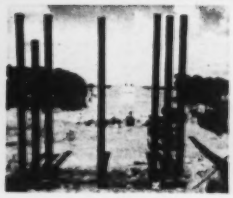
L.B. FOSTER CO.

PITTSBURGH 30 NEW YORK 7 CHICAGO 4
HOUSTON 2 LOS ANGELES 5 ATLANTA 8

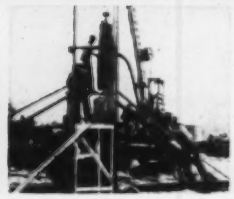
Copyright 1959 L. B. Foster Company

Immediate refererence in Sweet's Industrial Construction File, or send for our new 24-page Piling Catalog =EP-SA

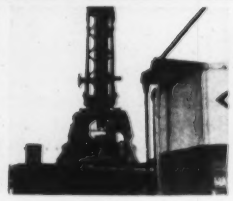
STEEL-SHEET PILING
City of Chicago Storm Sewer
Thatcher Engineering Corp



PIPE FOUNDATION PILE
Brazos River Bridge, Hearne, Tex.
J. A. Raines Construction Co.



FOSTER LIGHTWEIGHT PILING
Potomac Electric Power Co., D. C.
A. J. Ellis Construction Co.



H-BEARING PILE
Lake Texoma Bridge, Texas, Okla.
Massman Construction Co.

ALUMINUM BRIDGE RAILING
Eastshore Freeway, Oakland, Cal.
Grove, Shepherd, Wilson, Kruge, Inc.

WASHINGTON OBSERVER

- **Self-financing for REA?**
- **Proposed: Natural Resources Council**
- **Bigger grants for sewage disposal plants**

● **Public works advocates are already preparing for the next session of Congress.** Most of what is to be done is about completed for this year (see p. 23). What is in store for the next election year is significant to the construction industry.

Extending the idea of self-financing of revenue-producing public works ranks high in Congressional thinking. This year saw the creation of a bond-financing law for the Tennessee Valley Authority. Similar efforts will be made to give some measure of fiscal autonomy to other agencies.

Take the Rural Electrification Administration. Now the agency gets loan authority from Congress each year to disperse to co-ops for steam plant and transmission line construction.

Last week a White House-backed plan to create a $3-billion revolving fund was presented to Congress.

The legislation would permit REA to use money from repayments of loans to finance future loans. Congress would still formally okay the loan program, but would be faced with the reality that REA had money in the till. Congress would thus do less worrying about whether the proposals were fiscally prudent.

Proponents of a Columbia River Corp. in the Northwest are taking a cue from the TVA and REA developments. Supporters of legislation sponsored by Sen. Richard Neuberger (D., Ore.) feel they should attempt to write some kind of self-financing bill.

—

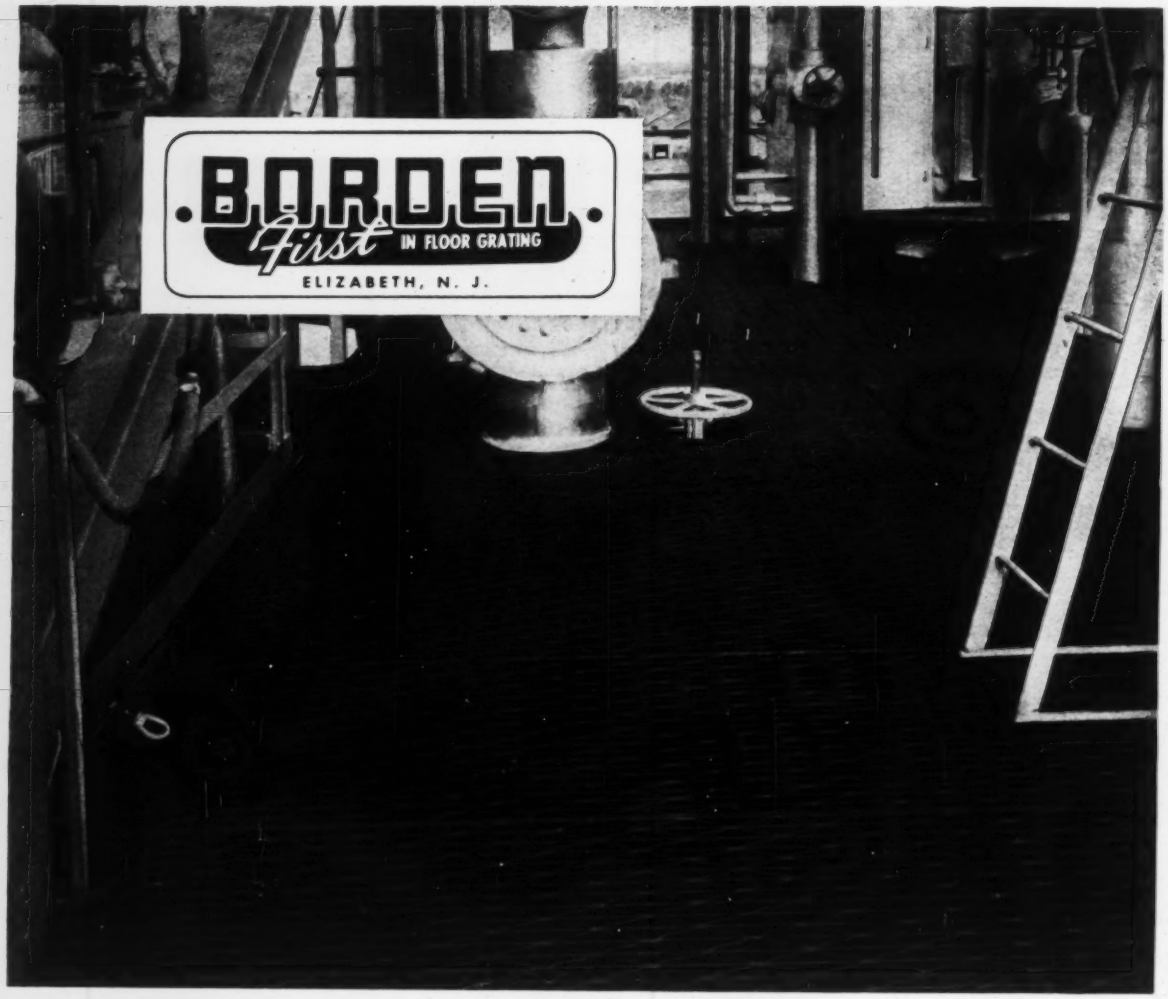
● **A "Natural Resources Council" is being pushed. The idea is to bring under one roof water resources policies and programs.** Sen. James E. Murray (D., Mont.) has 31 sponsors of legislation to establish such a council, with a joint Congressional committee counterpart. The organization would be policy-making, not legislative, and would be patterned after the President's Council of Economic Advisers with its Congressional Joint Economic Committee counterpart.

—

● **Grants for sewage disposal plants are in for session-end confusion.** The House of Representatives has passed legislation increasing federal grants in the future from the present 10-year, $50-million-a-year program. The House would increase federal grants to municipalities to $100 million. A Senate public works subcommittee informally, and by voice vote, reduced that figure to $60 million, estimating that President Eisenhower would veto the larger amount, but accept the lesser.

A review is now in progress, following the success of Sen. Eugene McCarthy (D., Minn.) in getting eight members of the 15-man Senate committee to sign a report recommending an increase to from $80 million to $100 million. The Public Works Committee is now faced with a subcommittee recommendation on the one hand and, on the other, a "minority" report signed by a majority of its own members.

The Senate will make the decision. Whatever it votes, the House of Representatives will take. And observers feel the figure will be somewhere between $60 million and $100 million.



HERE'S WHY THE BORDEN LABEL MEANS A BETTER JOB . . .

You cut installation cost . . .

Borden Checking Service insures correct dimensions, fit and placement—each panel checked for size, each panel marked, and entire platform is laid out on our shop floor and checked against the shop drawing.

Level, even surfaces . . .

Floor gratings, and safety steps by Borden insure easy working, walking and wheeling surfaces because our precision manufacturing processes require finest quality materials and workmanship.

Free from warps or camber . . .

Factory tested and inspected, Borden gratings stay perfect through the uniformity of materials and design. No imperfections or irregularities of construction to cause warping or camber, trouble-free service assured for the life of the gratings.

BORDEN METAL PRODUCTS CO.

Gentlemen:

"Please send me NEW 1959 BORDEN Catalog"

NAME .....

TITLE .....

COMPANY NAME .....

ST. AND NO. .....

CITY AND STATE .....

Write today for free

16-page catalog showing all basic types of grating; more than 30 dimensional drawings of subtypes; eight safe load tables for steel and aluminum grating.

BORDEN METAL PRODUCTS CO.

"greatest name in gratings"

815 GREEN LANE ELizabeth 2-6410 ELIZABETH, N. J.

Plants at: UNION, N. J. — LEEDS, ALA. — CONROE, TEXAS — BEETON, ONTARIO

ENGINEERING
NEWS-RECORD

Congress: Key Bills Still Hanging

- **Highways: Financing schemes come and go, but the problem remains.**
- **Housing: Green light from Senate, yellow from House. Red from Ike?**
- **Labor: Both sides predict they'll write a bill.**

This week, as the first session of the 86th Congress moved toward an uncertain adjournment date, four pieces of legislation vital to construction awaited decision. Here's how things looked early this week, amidst intense backstage maneuvering and pressures.

• Labor—Congressional conferees this week were tackling the toughest part of reconciling the House and Senate labor bills. That includes new Taft-Hartley rules for secondary boycotts, organizational picketing and federal jurisdiction—all key issues in the legislative debate. The easy part—compromise agreements on union democracy and anti-racketeering—is over.

The conferees hoped to reconcile the tougher rules of the House's Landrum-Griffin bill with the Senate's Kennedy-Ervin bill.

Both sides predicted a compromise would be reached. But this could require more concessions than the Senate will be willing to make.

The conferees leaned toward a tougher bill in working through the first five sections. These covered a "bill of rights" providing for secret ballots, the right to speak out in union meetings and other democratic practices for union members. They also agreed on rules requiring union leaders and employers to file financial reports, and on broad powers for the Secretary of Labor to investigate such reports.

Among the areas still open for compromise were the construction labor amendments. The Senate bill would allow unions to make working agreements, but only after the union is certified without a prior election and only if there has been a bargaining history. The House bill doesn't ease the current 30 day union shop restriction.

One possibility involves a trade: the tougher House boycott and picketing restrictions for the Senate's building trades amendments.

• Highways—A solution to the Interstate highway program's financial plight is still ensnarled in political maneuvering. New schemes, old schemes and alternate schemes for raising money are still coming—and going.

After rejecting one financial solution proposed by the House Ways and Means Committee, Public Works Committee members have been fighting among themselves over the new money-raising plan offered by Ways and Means. Not only are Public Works members unhappy over the Ways and Means proposal to hike fuels taxes by one cent a gallon for a 21-month period, but members are battling over a proposal to get a declaration of intent from Congress to reimburse states for toll and freeways included in the Interstate system.

Speaker Rayburn, however, has told the Public Works Committee to reach an agreement or the financing portion of the bill will be split and put to the House for a separate vote. Committee Democrats met with Mr. Rayburn in an effort to swing his support to a new financing plan that would levy a ¼-cent-a-gallon fuels tax on motorists for only one year and immediately earmark additional excise taxes for roadbuilding.

Regardless of what plan Congress finally approves to bail out the road program this year, it is sure to leave a trail of disgruntled legislators. And it seems sure to shift more importance to 1961, when Congress plans to take a new look at the long-range roadbuilding financing plan based on recommendations due from the Bureau of Public Works on who is benefiting from the new highways.

• Housing—The Senate voted 71 to 25 last week for a new, scaled-down housing bill to replace the earlier version that Mr. Eisenhower vetoed.

As this week began, the House was still in a quandary. Democrats hoped for unanimous consent to suspend rules and bring the measure to the floor.

Should the Republicans balk, however, the bill could get bogged down in the Rules Committee.

For the time being, the House parliamentary situation overshadows in importance the terms of the legislation. Major features of the bill are:

- $8 billion of new mortgage insurance authority for the Federal Housing Administration; lower down payments on FHA-insured homes.
- $500 million for urban renewal, plus $150 million that may be allocated at the President's discretion.
- $100 million for new direct loan programs that Mr. Eisenhower does not want—$50 million each for college classrooms and for special housing projects for the aged.
- Authority to build 37,000 more units of public housing—another feature the Administration dislikes.

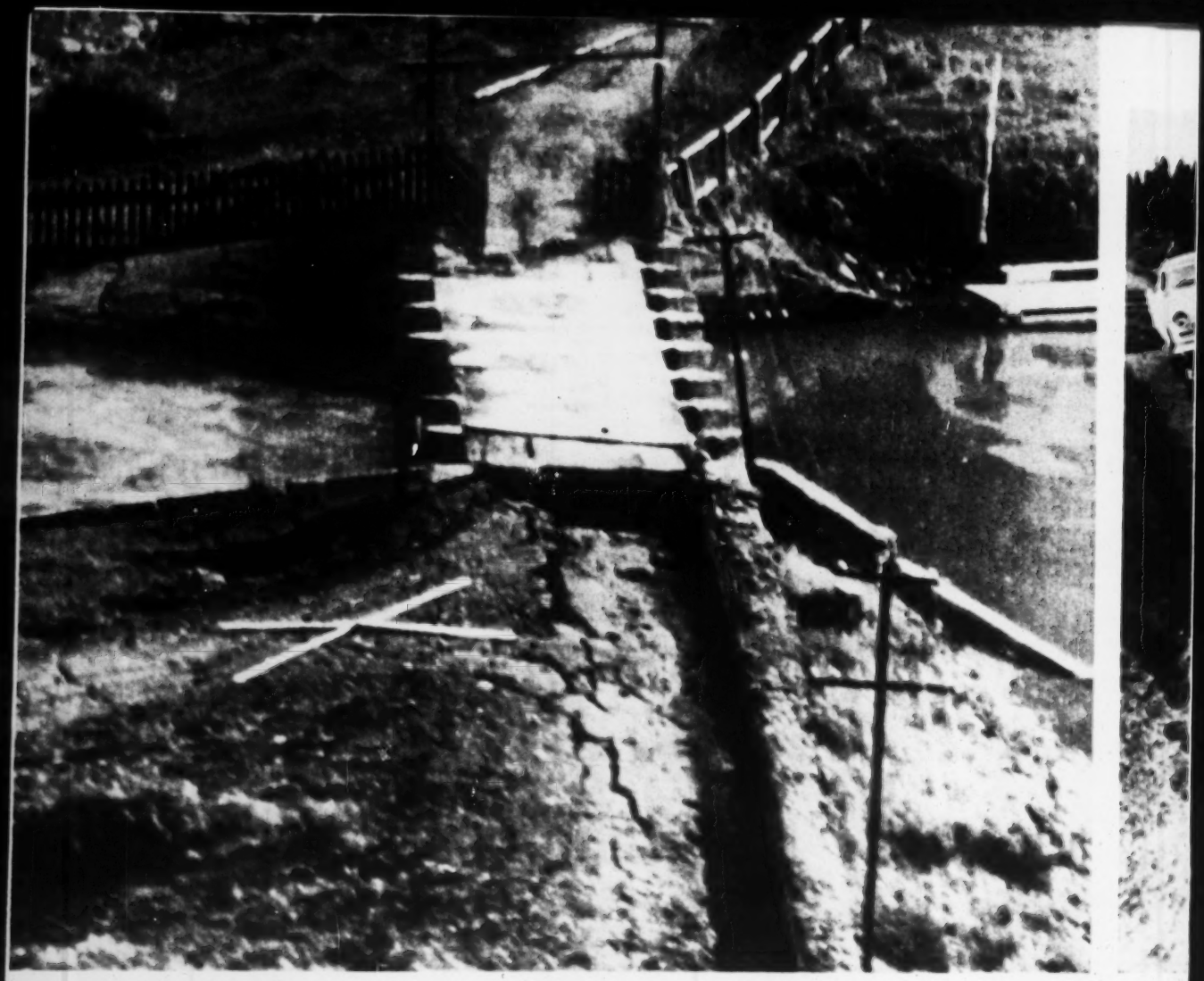
• Military construction—Senate committee action last week restored more than half the money cuts made by the House in the military construction appropriation bill.

As submitted for floor debate and decision, the Senate version called for $1.428 billion, up $143 million from the House bill and just $135 million less than the Defense Department originally asked for.

Money amounts were increased as expected by the Senate Appropriations Committee, which had held additional hearings for armed forces spokesmen after the House passed its bill. The committee upped the construction funds for the regular forces to $279 million for the Army, $226 million for the Navy and $803 million for the Air Force. Construction for reserve components also was increased more than $13 million, to $73 million.

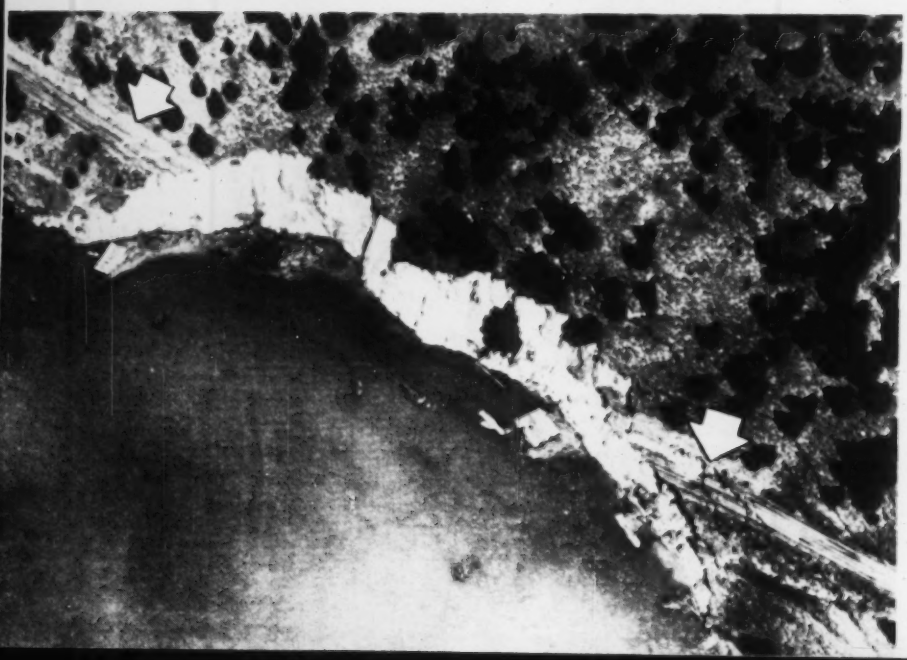
House and Senate versions agreed on the big slug of money going to construction of missile facilities: $413 million for Air Force projects in North America and $118 million for Army Nike installations—$34 million in continental U.S., $84 million overseas.

Conferees appointed by the two houses will settle the differences over other items. Final compromises were expected to be closer to the higher Senate figures than to the minimum amounts voted by the House.



Although cracked after the quake, rolled-earth, concrete-core dam stayed in service.

Major Quake Fails to Breach



A 44-year-old concrete-core earthfill dam withstood the severe earthquake in southeastern Montana last week. It cracked and shifted, but remained intact.

The quake damaged highways in the area and caused landslides that killed 12 or more persons and injured scores.

Hebgen Dam was jarred for several hours by earthshocks with a maximum intensity reported by the University of California as 7.8 on the Richter scale. That compares to 7.5-7.75 for the 1952 Bakersfield quake and 8.25 for San Francisco's famed 1906 earthquake. Aftershocks in last week's quakes ranged from 6.0 to 6.75 during the night and early morning. The dam is on the Madison River, west of Yellowstone National Park.

The initial shock caused the water

◀ **Cave-in dunked half-mile of road.**

his highway was one piece before last week's temblors.

Hebgen Dam, intact after quake.

Montana Earth Dam

in the reservoir to oscillate violently. Great quantities sloshed over the dam and reportedly lowered the reservoir level two feet. On a reverse movement of the water, the upstream toe of the dam could be seen. The shock also caused the east abutment (spillway side) of the dam to settle eight to ten inches.

Hebgen Dam rises 87.3 ft from the stream bed. It has an 8-ft-thick concrete core wall that goes down an additional 36 ft, thickening to 90 ft at its bedrock foundations. Rolled earthfill embankment enclosing the core wall extends 237 ft downstream and 265 ft upstream at stream-bed level. The upstream slope is paved with two feet of rock. The dam is 718 ft long at the crest.

The dam impounds water for downstream power generation but has no powerhouse of its own.

Montana Power Co., owner of the dam, reports cracking on the order of 1½ in. at the crest of the core wall and some minor leaks.

The company expects to lower the reservoir to facilitate a thorough inspection. If the concrete core is badly fractured, it may have to be grouted.

Earthfill dams are not built with concrete-core walls today because of the danger of cracking.

Major concern now is a huge earth and rock embankment that blocks the river about five miles below the dam. It was brought there when the quake dropped 5 million cu yd of material from the mountainside onto State Highway 1 and across the stream bed.

The embankment is causing formation of a lake from the normal Hebgen Dam spillway discharge. It's estimated that the lake could hold 50,000 acre ft, but it might build up enough head to wash out the embankment and cause great damage downstream.

To cope with this threat, the Corps of Engineers has set up an area office at West Yellowstone. The Corps is acting under its emergency flood control powers, exercised for the first time because of an earthquake.

A Corps official, Wendell E. Johnson, investigated the embankment this week, after helicopter landing.

Last Sunday the Corps moved heavy earthmoving equipment to the downstream toe of the embankment and proceeded to bulldoze a road up the face so the equipment could operate from the top.

It is estimated that the lake could fill within 20 days. Two possibilities were being considered: lowering the height of the embankment by pushing the crest material into the lake; or cutting a trench through the embankment.

In either case, the objective would be to lower the head against the embankment to reduce the chance of failure. Water could then flow over or through the embankment, sparing the town of Ennis and a power plant downstream.

Remember this failure? Here's how they're . . .

Making Sure It Won't Happen Again

The designer and contractor replacing the Westbury, L. I., industrial building that tilted over in May (picture) are making sure the failure won't be repeated.

The entire structural steel frame and roof of the one-story, 25,000-sq-ft building keeled over during construction (ENR May 14, p. 29). The roof had been completed, but work had not yet started on the walls. One worker was killed and several others were injured.

The failure appears to have been due to inadequate resistance to sidesway.

Now the building is going up again. But this time some structural changes have been made.

The original structure was designed with continuous girders atop the columns and continuous beams on top of the girders. It had knee braces only between girders and columns.

The new structure has a knee brace between columns and beams as well as girders. There are now eight lines of knee braces, four lines in each direction, compared with two lines in one direction in the original structure.

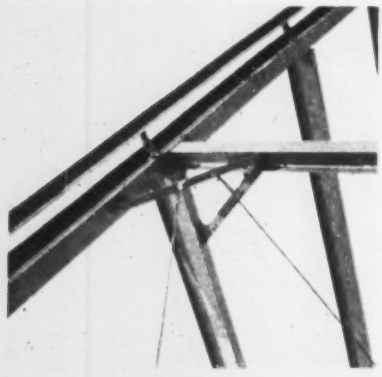
Where the original base plates were set on steel shims, the new ones rest on leveling plates.

Two lines of "I" beams now run around the periphery of the building. They conceivably could draft the curtain wall as an additional stiffener.

The building that collapsed had been designed to meet the town code. The engineer for the structure had not been responsible for supervision.

Building-code requirements just made by the Town of Oyster Bay now require a professional engineer or registered architect to inspect construction. Work must stop "if for any reason" he ends his supervision.

The Westbury building is being constructed for the Sem Co., Westbury, N. Y. It is 175 x 143 ft in plan, and about 15 ft high. Janco Construction Co., Westbury, is general contractor; Kurtz Iron Works, Mineola, N. Y., is steel fabricator and erector. Charles F. Catalano, Elmont, N. Y. engineer, is the designer.



1. More knee braces

2. Leveling plates under columns

3. Extra perimeter "I" beams

Air Conditioning System Is Built Into Columns

Two new office buildings are cooled by air that comes from within the structural columns.

The idea is being used in the Lafayette Square Building, Buffalo, N. Y., and the East Ohio Building, Cleveland.

Structural columns of both buildings are made of reinforced concrete. If separate air-conditioning systems had been installed, the combined space loss would have been considerable.

The air-conditioning equipment is placed on the roof of the building and blows down. Air ducts are larger near the top of the building—where columns are smaller—than on the lower floors.

The ducts are telescoped within the structural column. In the Buffalo building this was accomplished by using a U-shaped reinforced concrete structural column, attaching Z-bars and then welding a plate onto the Z-bars at the open end of the column. The opening within carries air blown from above. The ducts vary from 8 in. sq to 14 in. sq. In the East Ohio building, round ducts were placed in square openings that were built into the concrete columns as the columns were formed.

System was developed by Tishman Realty & Construction Co., Inc.

Monorail Sings the Blues After New Orleans Vote

Plans for a monorail transit system for New Orleans went off the tracks last week when the City Council killed a franchise proposal by a four to three vote.

Monorail of Louisiana, Inc., wanted to build a 16-mile, $32.5-million, two-track system between New Orleans and Moisant Airport (ENR Mar. 5, p. 27).

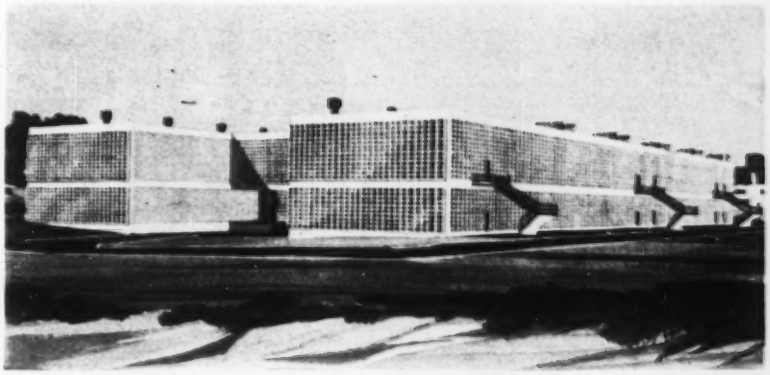
Opponents of the monorail system argued it would lower property values and jeopardize the existing seven-cent fare on street-cars and buses in New Orleans.

Congress Okays Cash for Federal Fallout Shelter

Congress has approved $2.4 million for construction of a prototype federal "relocation" fallout shelter at Denton, Tex. The House, which had originally rejected the project, agreed to that figure last week after the Senate approved the full $2.7-million Administration request.

The shelter would be the first of eight planned by the Office of Civil and Defense Mobilization.

The prototype shelter will be a two-level underground structure, about 140 x 160 ft in plan.



Plant Has 10,000 Popout Windows

A chemical manufacturing plant—specifically designed to minimize injury and destruction in case of explosion—will have 10,000 plastic popout windows.

The $7-million facility is being built for Parke-Davis & Co. in Holland, Mich.

When plant explosions occur in buildings with conventional glass windows, there is greater injury and destruction through flying glass and debris than from the blast itself, the plant's engineers say.

Plastic windows eliminate the danger of flying glass, and the popout feature provides a pressure release for the force of the blast.

The shell of the new chemical plant is 80% window area. Plans also call for the windows to be "bowed out" upon installation for even greater pressure release properties.

The two-story structure will contain 120,000 sq ft of floor space and is in the shape of an "H." It consists of four separate manufactured units at the points of the "H." The "cross-bar" serves as an area for utilities and material storage.

The building will be constructed primarily of prestressed, precast concrete. The sloped roof will be of concrete. Steel will be limited to necessary grating and the floor between stories.

The structure was designed by the Parke-Davis Engineering Division with A. M. Kinney, Inc., Cincinnati, as consulting engineer. Darin & Armstrong Co., Detroit, is the general contractor. Completion is expected late next year.

India to Get Aluminum Industry

Kaiser Aluminum & Chemical Corp., Oakland, Calif., and the Birla Industries of India plan an integrated aluminum-producing industry in India. The two firms organized Hindustan Aluminum Corp. Ltd. as a joint venture.

It will invest $30 million to build and operate an aluminum-producing plant with an annual capacity of 20,000 metric tons, and related bauxite and aluminum facilities.

Kaiser's interest in the venture will be 27%; the remainder will be invested by Indian interests. This is the largest investment by an American firm in a joint venture with an Indian company. Hindustan Aluminum is seeking $15.8 million in loans from the U. S. Export-Import Bank.

The facilities are expected to start operating in 1962. They will be built by Kaiser Engineers Division of Henry J. Kaiser Co. The project will be located at Rihand Uttar Pradesh, a province in Central India, to take advantage of the power provided by Rihand Dam.

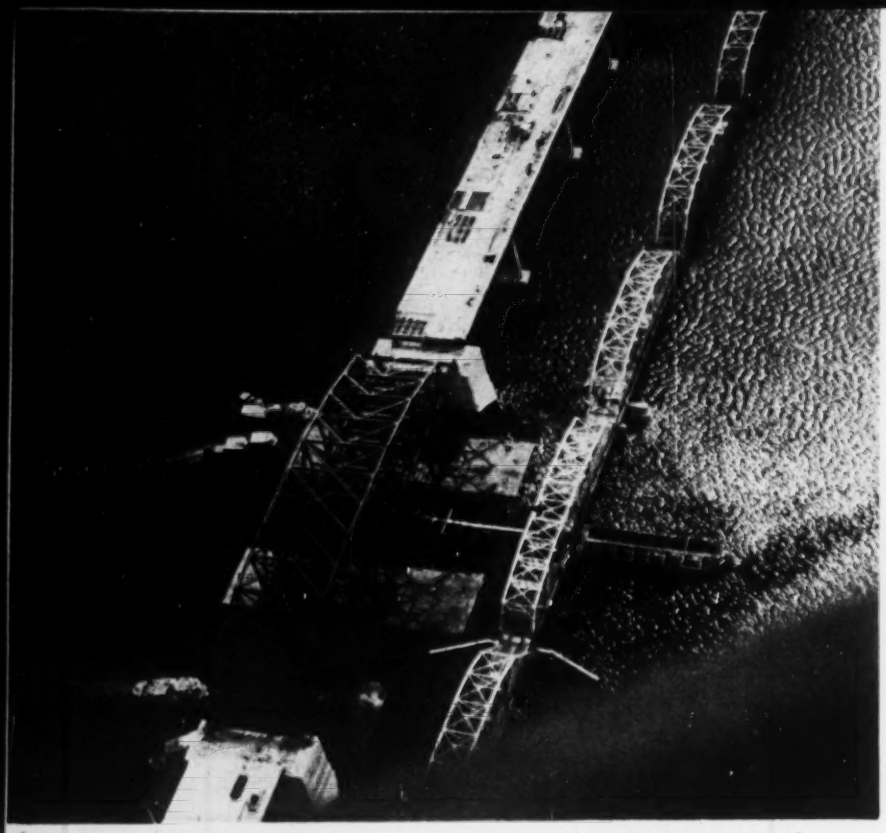
Rihand Dam was planned to help improve the living conditions in the particularly poor eastern and southeastern area of Uttar Pradesh through irrigation and power.

The power will permit expansion of the cottage industries and attract major industries to the region.

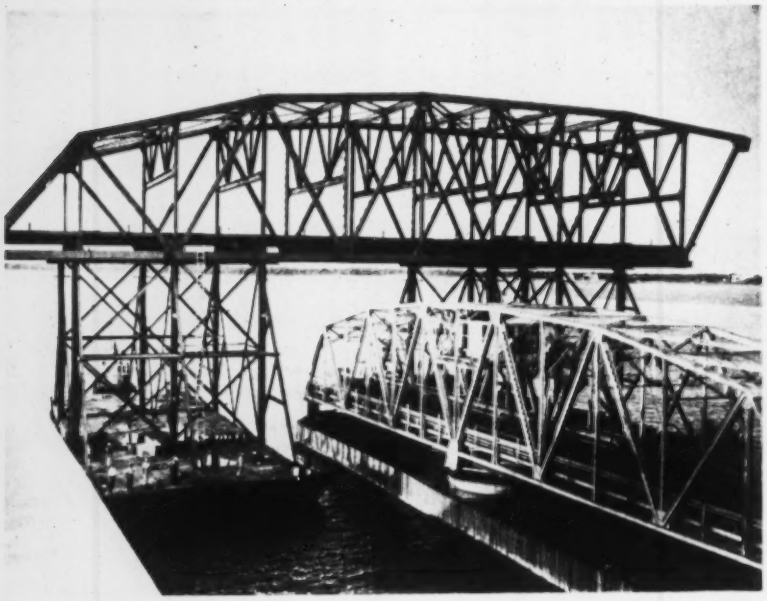
The dam, still under construction, is a gravity-section structure 296 ft high and 3,254 ft long located on the Rihand River. Five 50,000-kw generators will be installed in the powerhouse. Power will be transmitted over 132-kw lines.

Market studies indicate that India, which now imports all its aluminum, has a rapidly growing demand for the metal. The new plants will help meet that demand while at the same time reducing the country's foreign exchange requirements.

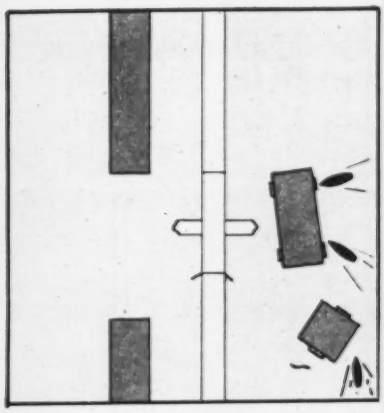
Birla Industries is one of the largest private industrial organizations in India and leader in that country's continuing industrial revolution.



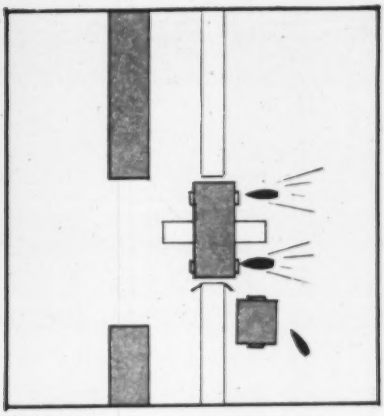
Before the truss for new bridge could be assembled and placed . . .



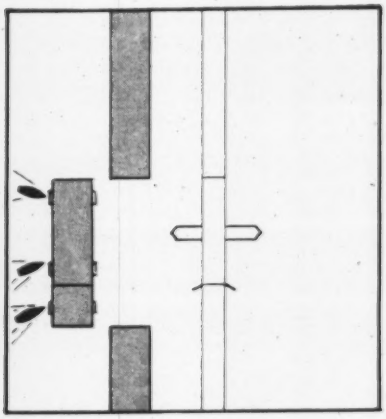
. . . part of it had to be slipped over the open swing span of old bridge.



TUGS wait for swing span on old bridge to open before . . .



PUSHING barge-mounted section for new bridge through, astraddle the swing span.



NEW SECTIONS are assembled on the other side, then pushed into place.

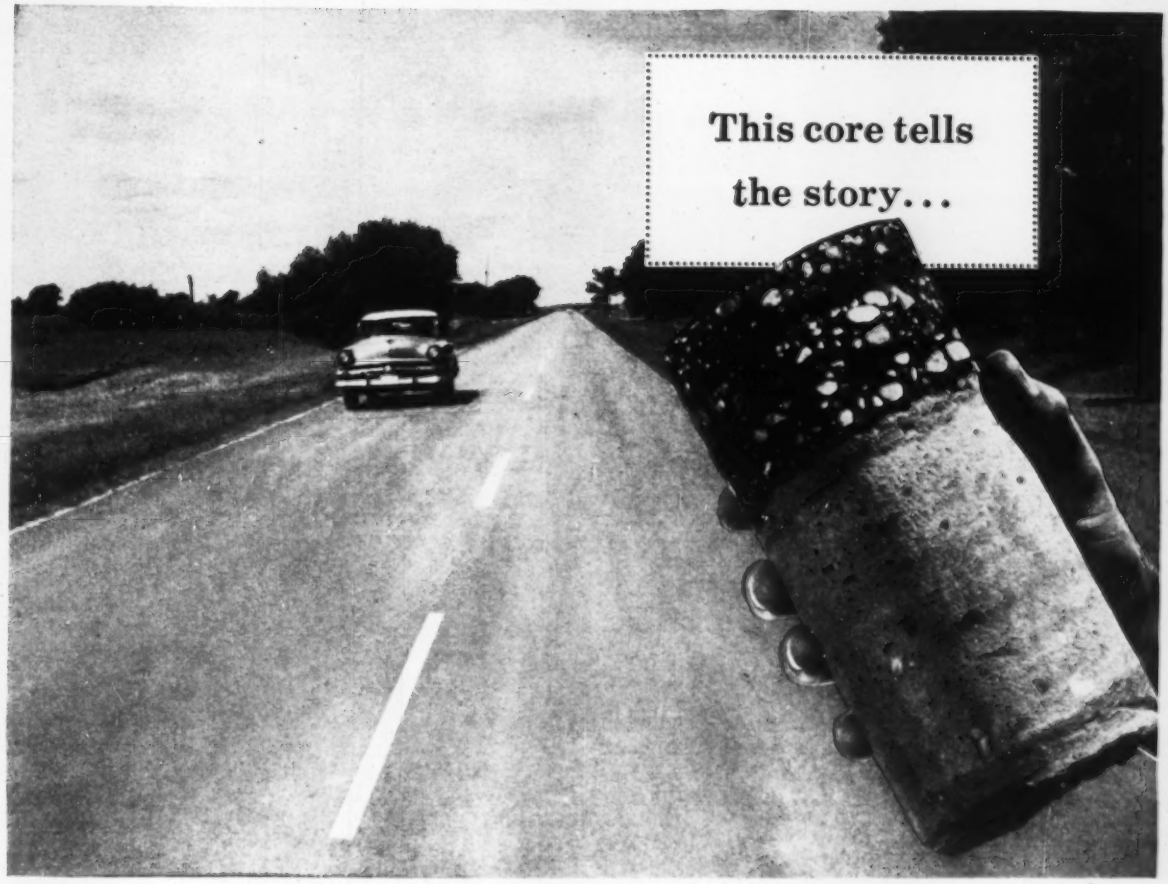
Leapfrogging One Bridge Over Another

Erecting the main span of a Florida bridge, contractors resorted to unusual techniques. Among them: leapfrogging one span over another and connecting two truss sections while they were floating on separate barges.

The operation took place early this month during construction of the $5-million Hathaway Bridge across St. Andrews Bay at Panama City, Fla. The entire bridge is 3,600 ft long and 67 ft wide. It is designed to carry four lanes of vehicular traffic.

Its channel span is a simple truss designed so that it can be used later as part of a vertical lift bridge if up-bay development of a deep-water port should require more than 52-ft water clearance. This truss is the unit that had to play leap frog. It weighs 850

(Continued on p. 32)



Compressive strength was 1,697 psi in 1958 on Minnesota's Trunk Highway No. 1. In 1941, 28-day strength was 580 psi. Adverse conditions include temperature range from −45° to +107° and frequent spring flooding.

Strength increased 192% in 17 years on this Marshall County, Minn. highway

...soil-cement pavement grows stronger year by year!

Soil-cement outlasts all other low-cost pavements . . . is the strongest pavement next to concrete!

Compare soil-cement with any other low-cost pavement.

Soil-cement gains strength rapidly, continues to gain even more strength as time passes. The first soil-cement pavement was constructed in 1935. After 24 years it is still giving drivers excellent service.

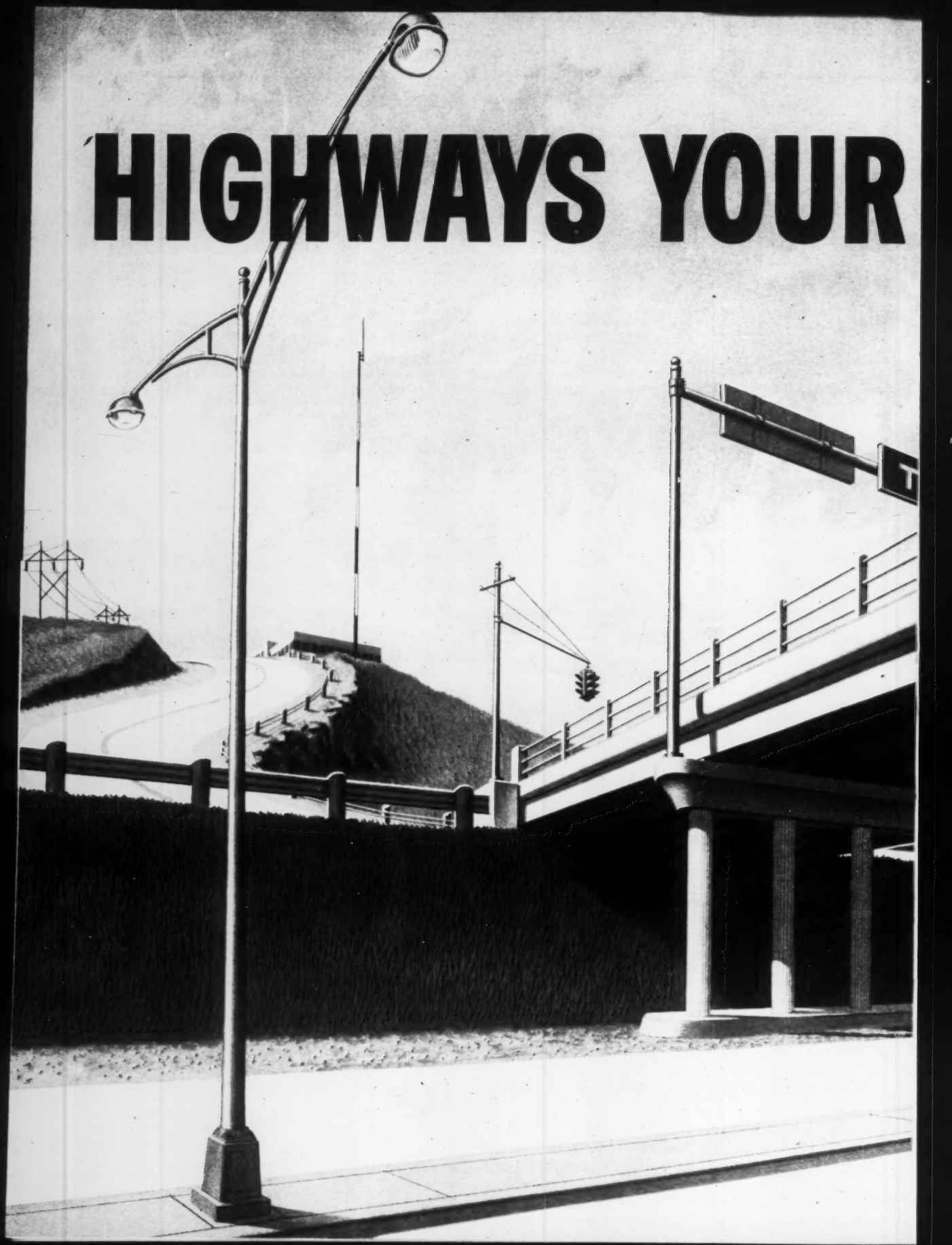
With soil-cement, 75% of the materials are usually free. The main ingredient can be soil right at the site. Broken-up blacktop surfacing is often included. Skilled crews can lay well over a mile a day by using modern machines that mix the soil with portland cement and water. The mixture is rolled solid then topped with a thin bituminous surface. Soil-cement is durable, no potholes or soft spots.

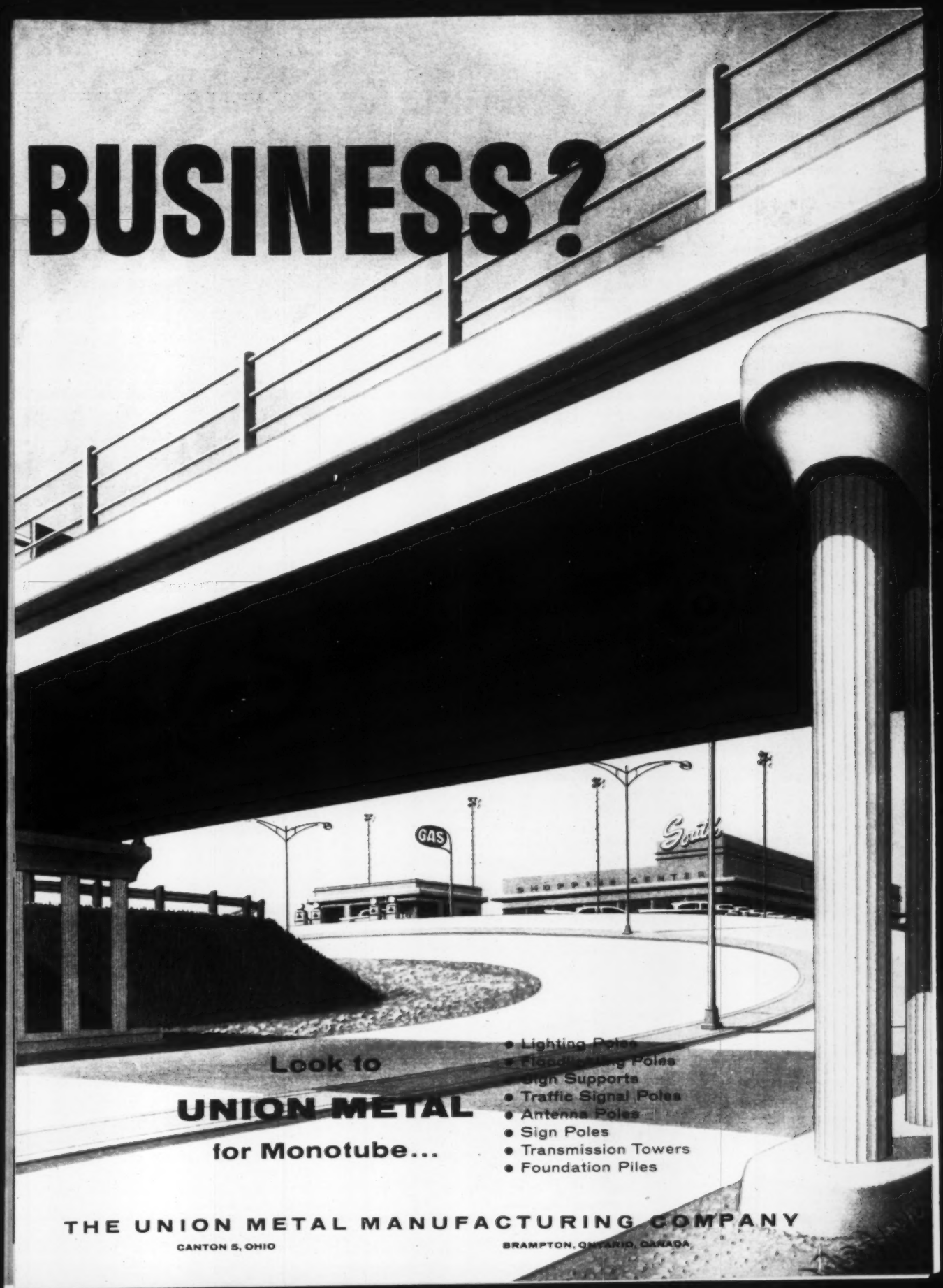
It's America's fastest-growing low-cost paving material for roads, streets, shoulders, subbases, airports and parking lots. Write for free literature. (U.S. and Canada only.)

PORTLAND CEMENT ASSOCIATION
Dept. A8d-17 33 W. Grand Ave., Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete

MODERN
soil-cement


HIGHWAYS YOUR


BUSINESS?
GAS
Look to
UNION METAL
for Monotube...
• Lighting Poles
• Floodlighting Poles
• Sign Supports
• Traffic Signal Poles
• Antenna Poles
• Sign Poles
• Transmission Towers
• Foundation Piles
THE UNION METAL MANUFACTURING COMPANY
CANTON 5, OHIO
BRAMPTON, ONTARIO, CANADA

tons and is 327½ ft long, 48 ft high at the center.

The bridge is being constructed less than 100 ft away from an obsolete—but still used—low-level crossing with a 202-ft swing span. The Corps of Engineers gave the contractors the right to close the swing span to water traffic for 48 hours during the erection of the new truss. The Florida State Road Department asked that disruption of vehicular traffic be kept to a minimum.

Actually, the old bridge was closed to water traffic for only 10 hours; to automobiles for only 27 minutes. Here's how it was done:

Fabricated steel was shipped by rail from the Bessemer, Ala., yard of the Nashville Bridge Co. to a shipyard down-bay from the bridge. Here, on falsework supported by three barges, the truss was assembled in two sections. Two barges carried 9½ panels of the unit. The remaining 2½ panels were assembled on the third barge.

This two-piece construction was necessary because of the difference in length between the new and old spans —327 ft as opposed to 202. It wasn't possible to balance the entire truss on two barges, clear the fenders of the old bridge and still align the truss with its bearings.

The two barges carrying the main truss section were floated up-bay first. The old swing span was opened, and with a barge going through on either side of the center pier, the new truss was pushed upstream over the main span of the old bridge. The clearance between upper chord of the one span and the lower chord of the other was only 20 in.

Once clear of both the new and old structures, the truss section floated slightly inshore and tied up to the new crossing. The smaller section of the truss followed.

Connection of the two sections was made easy by water-ballasting the barges for alignment of the bolt holes. The completed truss was then towed away from the bridge and floated back into its position over the channel. Water ballasting of the three barges settled the truss on its bearings and cleared it of the falsework.

When the new bridge is opened to traffic, the old bridge will be only partially demolished—the swing span and a 180-ft truss section on either side of it will be removed. The remaining 3,000 ft will be left in place to serve as a public fishing pier.

The Hathaway Bridge was designed by the Florida State Road Department under the direction of W. E. Dean, state bridge engineer. General contractor on the project is the Scott Co., Opelika, Ala. Kansas City Bridge Co., Kansas City, Mo., erected the span with W. B. Smiley Co., Lake Charles, La.

Around the World . . .

• **Bridge closure**—A 10-ton girder closed the gap on the new 2,058-ft Summit Bridge over the Chesapeake & Delaware Canal at Summit, Del. The $7-million crossing replaces an old drawbridge.

• **Arm bender**—The Town Board of West Seneca, N. Y., has passed an ordinance giving the town power to order repairs of unsafe structures. The town may appoint inspectors to check unsafe or collapsed buildings and if the owner fails to make repairs recommended, the town may order a contractor to do the work and then bill the owner for the cost.

• **Policy affirmed**—The American Society of Civil Engineers will publish in September a restatement of its policy on unity in the engineering profession. The ASCE philosophy: Unity means cooperative effort on matters of common concern, professional as well as technical; Engineers Joint Council exists as the framework for such effort.

• **Great Lakes Diversion**—Despite strong opposition from six Great Lakes states and Canada, the Senate Public Works Committee has approved a bill that would permit Chicago to take more water from Lake Michigan. The committee amended the House version to make the city liable for damages to shipping or power projects.

• **Rebuilding LaGuardia**—The Port of New York Authority has expanded an improvement program for LaGuardia Airport from $32 million to $56 million. Begun two years ago, the program now includes a passenger terminal at $23.2 million, two-level approach roadways and parking areas, and an entirely new, $11.8-million runway.

• **Amity on the Indus?**—India and Pakistan might sign an agreement on the Indus River dispute as early as January. World Bank officials and representatives of the two countries have been working out a settlement.

College Offers Overseas Training

The "Ugly American"—the overseas misfit—is going to be beautified. American University in Washington, D. C., and the Business Council for International Understanding will start a training program for American business executives who will work overseas.

The program is aimed at sending overseas men better prepared to succeed in their assignments and to build good will for the U. S. abroad. To accomplish this, the program is intended to give the overseas-bound executive:

• Understanding of the people of his host country—their needs, aspirations and point of view.

• Ability to explain and defend the U. S. economy and government, and other aspects of American life.

• A start toward speaking the language of the host country.

• Some concept of the business, social and domestic situations he will encounter.

• Orientation for his wife to help in representing the U. S. abroad.

Any American business executive can enroll in the course. Fee is $500. The program has the active cooperation of the U. S. State Department and the U. S. Information Agency. The course runs for six weeks. It will be given six times during the next year. The first one starts Sept. 14.

Pumped Storage Hydro Job Bid

Appalachian Power Co. is ready to build its $45-million Smith Mountain Dam project on the Roanoke River as soon as the Federal Power Commission acts on the license application. The firm took bids last week on the two-dam pumped-storage project. Bid prices have not been disclosed.

Specifications covered both rockfill and concrete arch construction for both dams. No decision on type has been made.

The project involves two dams about 17 miles apart downstream from Roanoke, Va. Generating capacity will be 285,000 kilowatts at the upstream powerhouse, 35,000 kw at the downstream plant.

Reversible turbines at the downstream plant will pump water into a storage reservoir during low-demand hours for use in power generation during high-demand periods.

Designer of the project is American Electric Power Service Corp. Both the designing firm and the owner are subsidiaries of American Electric Power Co., New York City.

A Fruehauf Dump-Trailer For Every Tough Job!

Do The Work of Two or More Trucks—At Less Cost—With One of These Fruehauf Trailers

Cable Dumps—Simple mechanism—low initial cost—low upkeep—full use of bridge formula laws—low Trailer weight—up to 4,000 pounds of extra payload—unmatched maneuverability on rough ground or in tight places. Trailer can be dumped with tractor jackknifed up to 90° angle—cable mechanism can be used to pull either tractor or Trailer out of rut or hole—single or tandem axle units available.

Hoist-Type Dumps—Wide range of designs—steel units (shown above) or frameless aluminum units (shown below) with up to 3,500 weight savings—single or tandem axle suspensions—single or twin front-mounted or under-mounted telescopic hoists—sand and gravel units or rugged rock bodies.

Hopper-Type Dumps—For sand, gravel, aggregates—frameless high-tensile steel body—designed for the strain of rough terrain—steeply-pitched inner surfaces for fast unloading—gate trip mechanism with ten control settings for varied unloading speeds.

FRUEHAUF ALSO BUILDS A FULL LINE OF CARRYALLS, PLATFORMS, AND CEMENT AND HOT COMMODITY TANKS FOR CONSTRUCTION WORK!

FRUEHAUF TRAILERS

For Forty-Five Years—More Fruehauf Trailers On The Road Than Any Other Make!

World's Largest Builder of Truck-Trailers

FRUEHAUF TRAILER COMPANY

10949 Harper Avenue • Detroit 32, Michigan

Send Free, Illustrated Literature, With No Obligation, On Units Checked:

☐ **Cable Dumps** ☐ **Hoist-Type Dumps**

☐ **Hopper-Type Dumps** **Other**_____

NAME _____

ADDRESS _____

COMPANY _____

CITY _____ STATE _____

Making Quick Work of a Complex

The permanent home of the Tokyo Trade Fair is a product of fast construction and complicated design work.

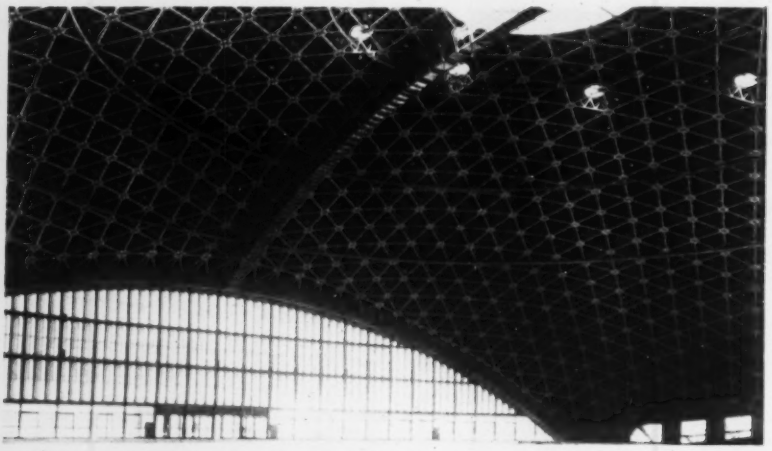
The main, domed hall of the fair grounds, spanning 400 ft, was the center of this activity because:

- The 2,500 steel triangular panels of its skewed, trussed frame were all of different lengths with different connections.
- Crowded schedules allowed less than 180 working days for erection.

The building's shape is extraordinary, too. Place a shallow bowl upside down and slice a section off one side, tip up the opposite side a bit and cut a hole through what is now the top center—that's roughly the shape of the main hall.

Architect Masachika Murata tipped the dome over its entrance for two reasons: to let light in around the entire back side, and to give the whole structure a mobile effect.

And he chose a dome to eliminate interior supporting columns.



Rotating catwalk inside dome provides access to ceiling lights.

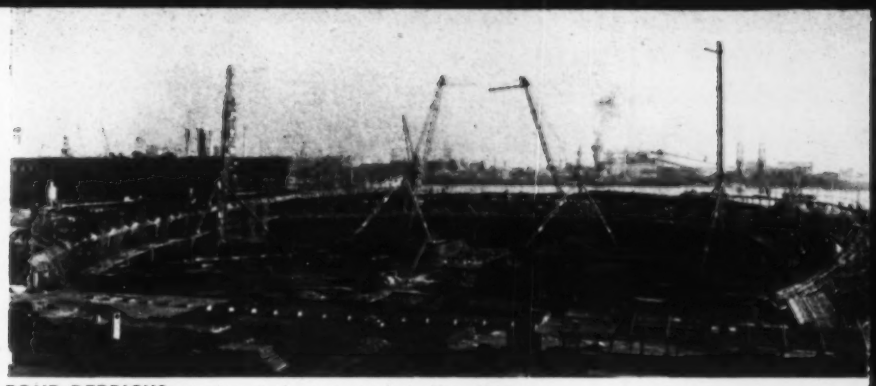
While crews were building foundations for the dome, and working at it on a 24-hour basis, elements for the steel frame were being turned out at a factory as fast as designers could check on the size and dimensions of each piece.

The framing consists of 2,500 triangles of different length and size, formed by intersection of trussed ribs. But all trusses have a constant depth of 3 ft 4 in. Reason for the changing sizes is that the designer divided the semicircumference into six sections, and each, in turn, was divided by 20 concentric circles.

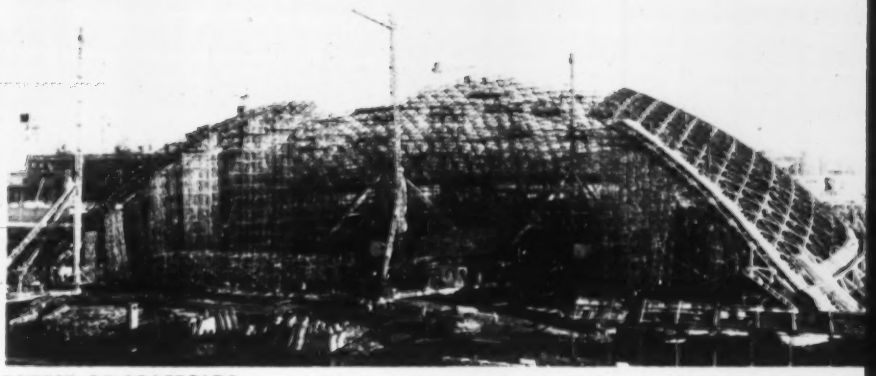
With this dome layout, Prof. Yoshikatsu Tsuboi, of Tokyo University, the structural engineer, had each triangle calculated by spherical trigonometry using an electronic computor. With 2,500 separate problems, and as many connections, it seemed the simplest system, considering the time available.

The dome rests on a 400-ft-dia reinforced concrete foundation ring, supported on 650 concrete piles that vary from 23 to 40 ft long. All are driven at a batter of 1 on 10, angling out from the foundation ring to provide a reaction to the thrust of the dome and to give support in the site's land-fill.

The entrance arch at the front of the hall is a slanted curve with a 696-ft radius. The steel box frame of the arch rests on heavy concrete abutments



FOUR DERRICKS, starting at the rear, sped steel erection.



FOREST OF SCAFFOLDS carry the frame as crews work toward dome entrance.

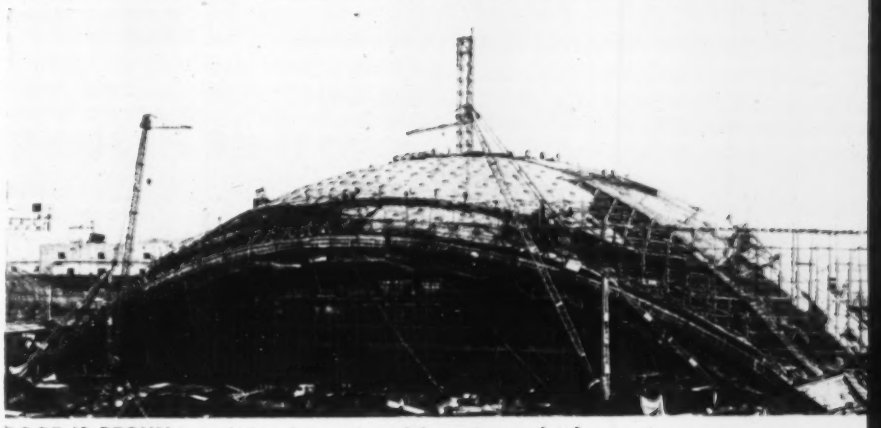
Dome

reaching 40 ft below ground level. Tie rods between the abutments connect the arch ends.

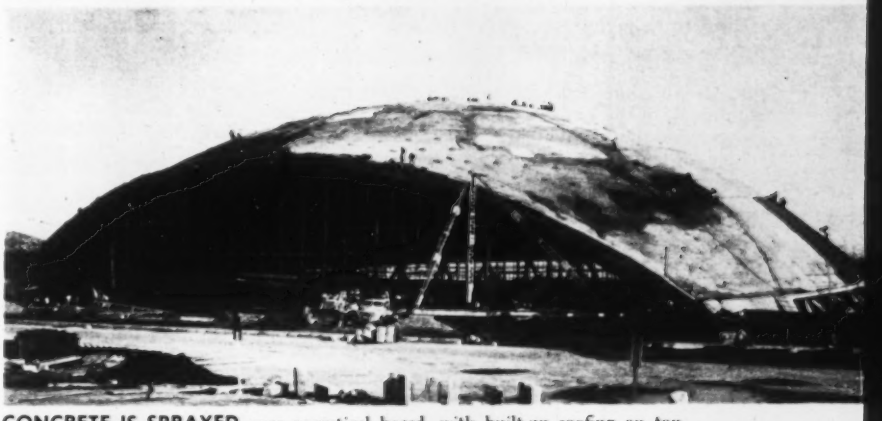
Dome erection began at the rear and worked forward toward the arch entrance. Taisei Construction and Engineering Co., the builders, set up four stiffleg derricks in a semicircle within the perimeter of the dome to handle erection. As the dome was built up, on tabular steel scaffolding supports, the derricks were rolled out toward the arch. To complete the top central portion of the structure, Taisei set up a steel scaffold tower rising 180 ft high through the center of the dome. This tower, equipped with side-mounted jib booms, remained in place until the last of the dome frame was erected. It ended up projecting through the 50-ft-dia skylight at the top of the dome.

Workers built up the roof over the 950-ton frame in this manner: First came 3x6-ft sections of wood-chip concrete plank as an acoustic baffle. Over this went wire mesh and pneumatically applied concrete, 1½ in. deep. A three-ply build-up roof covered with aluminum paint completed the job.

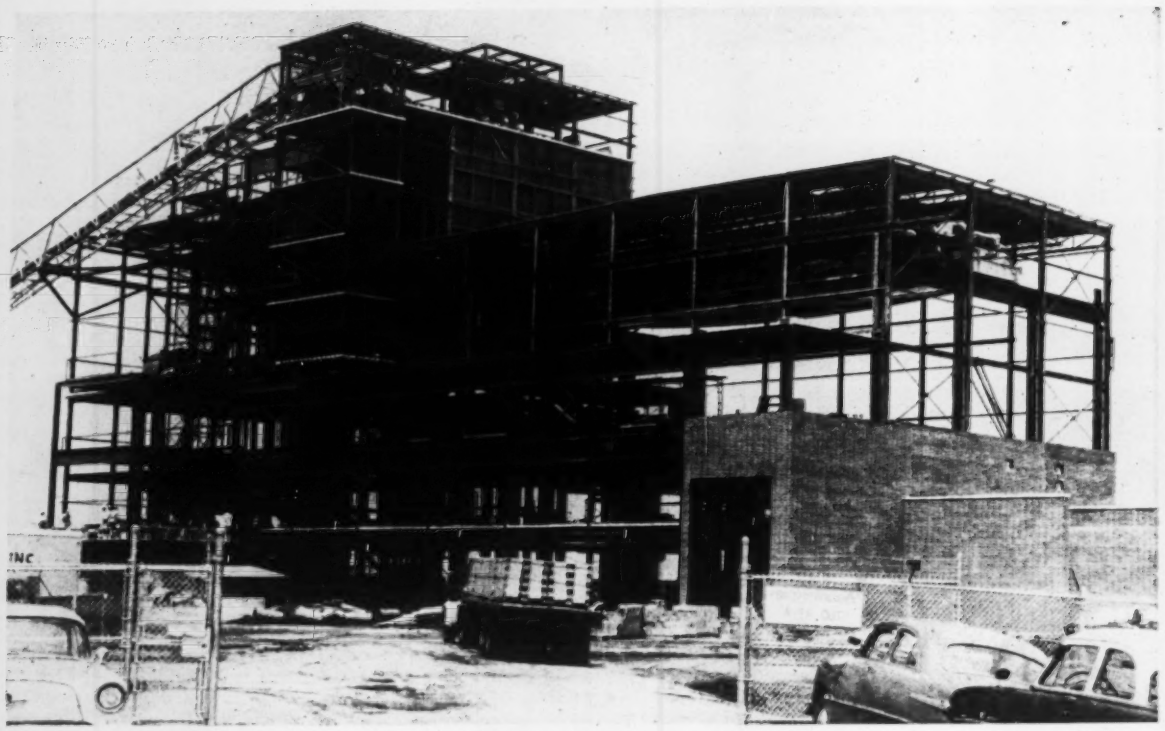
The 100,000 sq ft dome cost $1 million. The Tokyo Trade fair is an annual event that up to this year was quartered in $1 million worth of temporary buildings (ENR May 7, p. 83). The buildings were erected and disassembled each year.



ROOF IS BEGUN even before last section of frame is completed.



CONCRETE IS SPRAYED over acoustical board, with built-up roofing on top.



Vibroflotation is used under turbine-generator foundations.

A First: Powerhouse Stands Firm

The site of a new 33,000-kw power plant near Spencer, Iowa, was chosen primarily for the excellent aquifer underlying it in a glacial deposit of sand and gravel.

But the water bearing soil presented big problems in foundation design, despite its attractiveness as a source of water.

Even when very low soil pressures are used in design, footings in sand are likely to settle excessively if the sand is subject to high-frequency vibrations induced by rotating machinery.

Recognizing the threat of settlement due to vibrations from heavy rotating equipment of the power station, the designers use the Vibroflotation method to pre-settle the sand subsoil—probably making first use of this method of soil compaction in the U.S. for a power plant foundation.

The powerplant layout called for the ground floor to be about 1 ft above grade and footings to be 4 ft below grade. Column loads ranged from 50 to 1,000 kips, exclusive of concrete footings and ground floor slab. The turbine-generator with its foundation weighed over 2,500 kips. And beside the turbine-generator there were coal pulverizers, pumps and fans—the usual rotating machinery of a power plant.

Three foundation solutions were considered:

1. Long piles or piers extending into clay.

2. Short piles used for sand compaction.

3. Sand compaction by vibration.

The first solution was discarded both because of its greater cost and because it was deemed inadvisable to transfer large concentrated loads directly to the underlying clay. Also, the use of long piles under column footings would have required additional piles to support the ground floor slab, or a heavy concrete beam system would be needed to transfer floor loads to the main pile clusters in order to avoid differential settlement of the floor slab.

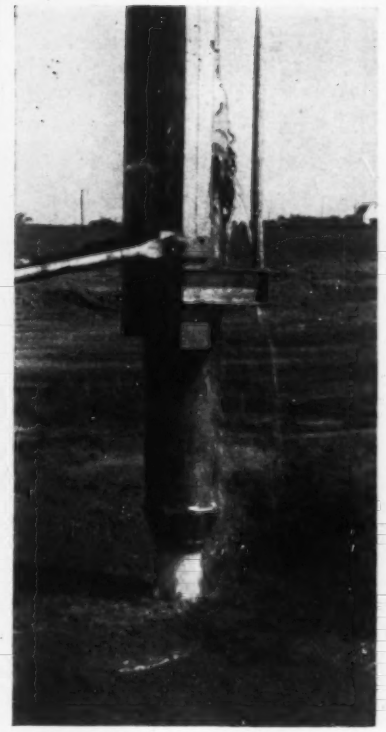
The second solution's short piles were more expensive than sand vibration and would not provide its uniformity of compaction, so sand vibration was chosen.

It appeared desirable to use spread footings and to compact the sand by vibration to form a thick dense layer that would transmit column loads as uniform loading over a larger area of the clay substrata. Sand vibration had the additional advantage over compaction piles of being suitable for the compaction of the fill material between the elevation of the bottom of the spread footings and the underside of the ground floor slab.

• **The chosen method**—It was decided to compact, or presettle, the sand subsoil by the proprietary method, Vibroflotation. Vibroflotation was developed for compaction of granular soils in Germany shortly before World War II and introduced to this country in the late 1940's. (See "Sand Needn't Be Treacherous," ENR July 2, 1953, p. 35).

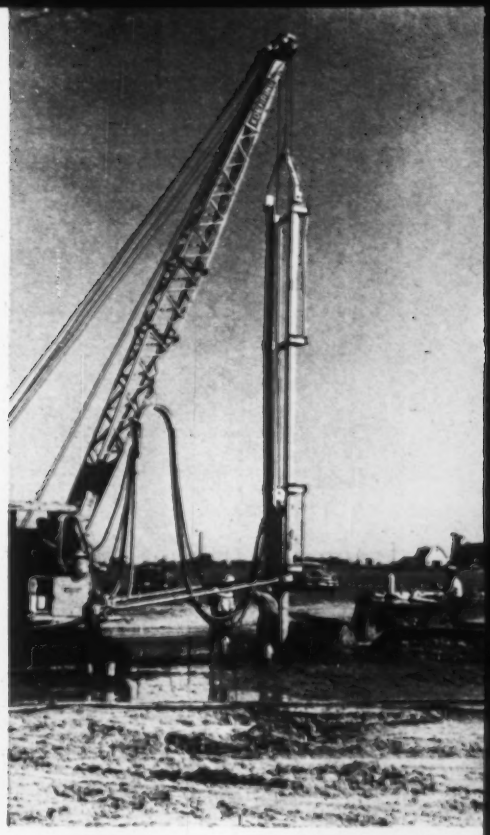
The method uses a vibrator consisting of a cylindrical steel casting tipped with water jets and containing an electric-motor-driven eccentric rotating weight (200 lb), which provides the

By Donald C. Petersen and Dimitri Nesterenko, of Stanley Engineering Co., Muscatine, Iowa. Mr. Petersen was the structural engineer in charge of the work. Mr. Nesterenko is the firm's principal structural engineer and was an advisor on this project.



"Vibroflot" enters the soil . . .

to do shaking, jetting job.



Sand is added as soil settles.

On Vibrated Soil

vibration. The 4,000-lb Vibroflot is sunk to the desired depth of consolidation by vibration coupled with an upward injection of water from the bottom of the vibrator. When it reaches a predetermined depth, the water feed is changed to the top and directed downward. Sand is gradually dumped into the crater to replace soil volume lost by compaction. As consolidation takes place the vibrator is withdrawn step by step, resulting in a cylindrical compacted column 8 to 10 ft in diameter.

The contract specifications written for this project required compaction to a minimum relative density of 70% for the entire main building area and for the subsoil under various outside structures, including an elevated water storage tank and several coal handling structures.

Although some money could have been saved in the main building area by compacting only under column footings, it was considered an unwise solution. The savings would have been small compared to the risk of having ground-floor areas subject to differential settlement.

An allowable bearing pressure of 6,000 psf was used in the design of the building footings. In some cases, where the ratio of live-load to dead-load was unusually high, the allowable bearing pressure of 6,000 psf for total load was exceeded slightly in an effort to make the dead-load bearing pressure fairly uniform throughout the building.

The area under the turbine-generator foundation was compacted to a minimum relative density of 85% since this is the area subject both to differential settlement and vibration. The machine has a total weight of 327,000 lb and rotates at 3,600 rpm.

• **How it worked**—First, the 3 ft of topsoil was stripped off, to be replaced with clean granular fill. Then the compaction was started and performed in two stages.

The first stage extended from slightly above the bottoms of the footings to a depth of 17 ft below the footings. There were 680 penetrations required: 599 in the main building area; 26 under the water tower; and 55 under various coal and ash handling structures. Triangular spacing of 7 ft 6 in. by 6 ft 6 in. between penetrations was used to achieve 70% minimum relative density; a triangular spacing of 6 ft 6 in. by 5 ft 6 in. was used for the 85% minimum relative density.

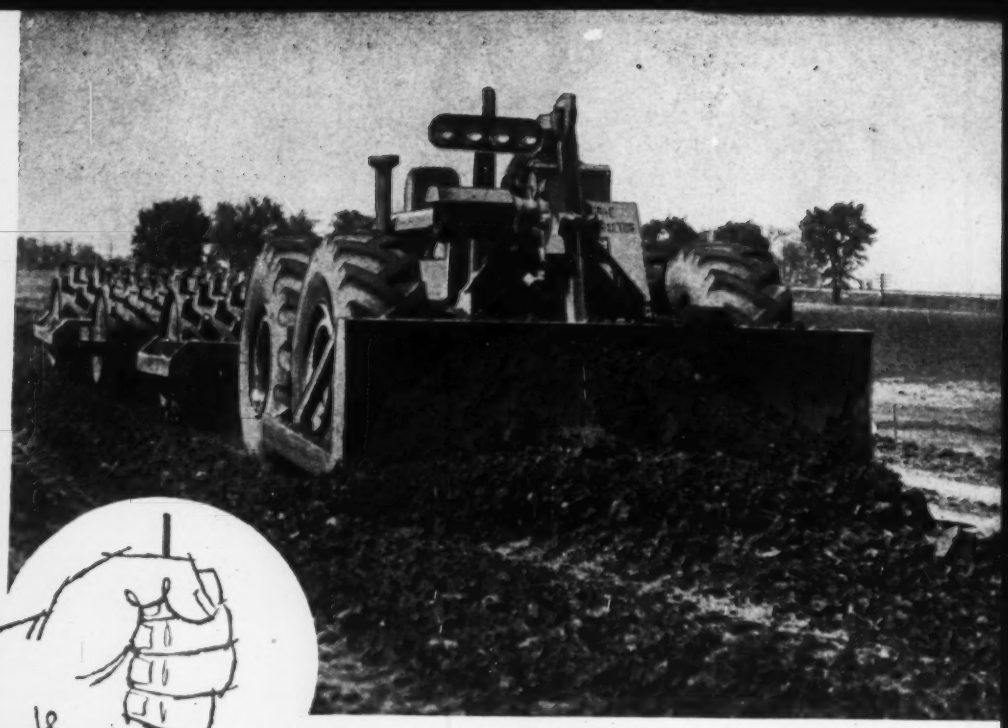
About 2½ cu yd of sand fill was required for each penetration to replace the volume lost by compaction. Water was used at the rate of 60 gpm during the compaction operation. Total water consumption averaged 2,000 gal per hour for each Vibroflot unit.

Difficulties were experienced in achieving the specified depth of penetration in some areas because of a layer of coarse gravel. It was loose enough to permit rapid diffusion of water without its very coarse particles being dislodged.

The cycle of operations normally required 10 to 20 minutes for each penetration. Of this time, about five minutes were used for actual compaction. It was observed that most of the consolidation took place during the first minute of operation, after the water feed was directed downward.

The second stage of compaction was performed after column footings were in place, to consolidate the 5 ft of granular fill between the bottom of the footings and the underside of the ground floor slab. A minimum relative density of 60% was specified for this second stage of compaction.

Field testing of relative density was somewhat complicated on this site by the fact that the sandy subsoil was



BALANCE your tractor fleet for extra profit...

When you plan dirtmoving contracts, you are usually faced with a wide variety of tractor assignments.

The question is: What kind of tractor — crawler-mounted or rubber-tired — will pay-off best in the work you're handling?

Repairs access road to isolated farm

Farmer's access road 5 miles down the pike is washed out. He can't get his pick-up out to the road, can't move his produce to market. Your Tournatractor is on the job in 20 minutes . . . repairs road in 20 minutes . . . is back on its regular job in another 20 minutes. You've saved money, made friends.

Hires out for plus profits

A property owner near your job wants land leveled for building site, or drainage. You "borrow" Tournatractor from production fleet . . . send it over highways, through city streets to the work site. Whole job takes only a few hours. Tournatractor earns $75 or so extra pay . . . without delaying the main job.

Balances production — cuts moving time

When your production fleet moves, self-propelled scrapers roll over highways to the new job. Tournatractor rolls with 'em. Scrapers can begin work on arrival, if a Tournatractor is used to push-load. (Crawler-pushers are usually latecomers since they must be loaded on flat-beds, hauled to job site, and ramp-unloaded.) When short hauls bunch-up your scrapers in the cut, again drive in Tournatractor. This tractor will quickly balance your pusher operation, until longer hauls get your production fleet back into efficient spacing.

Clears right-of-way for production earthmovers

While your heavy-duty crawlers grub out stumps or break up shale, there's plenty of rough work that a speedy tractor-on-rubber can handle . . . scattered work that will get your production haulers working sooner. Use a Tournatractor to pile logs, stumps, and brush, build and maintain haul roads, doze boulders, clear turn-around areas, connect access roads, cut drainage ditches to keep borrow pits and haul roads dry.

Big, 2-ft wide tires aid compaction

Material on fill is piling up fast. It needs continuous compaction or it will delay scraper cycles. Tournatractor levels high spots with its dozer blade, at the same time it pulls a 35-ton, 6-drum sheepsfoot roller. Tournatractor's 2' wide tires, carrying 20 tons of weight, combine prepacking with heavy 30 to 50-ton follow-up for most effective compaction.

Quickly reconditions mucky haul roads

Your heavily-loaded scrapers cut deep ruts into wet haul roads . . . slow production cycles. Tournatractor, called from an assignment a mile away, can be regrading damaged haul road in 5 minutes. With quick forward and reverse passes, Tournatractor dozes in fill, levels surface, cuts a trench to improve drainage . . . puts production scrapers back on schedule. In fact, it's profitable on most jobs to have this quickly available unit patrol your heavily used haul roads several times a day.

For heavy, short-haul work? For scattered work?

For most heavy, short-haul work . . . for dozing in rock-filled earth . . . and for "stay put" work in limited areas . . . slow-moving crawler-tractors fill the bill, because they have more lugging power at slow speeds.

For work where travel range is important . . . for leveling scattered fill . . . towing "part-time" scrapers . . . cleaning up . . . maintaining haul and access roads . . . push-loading . . . finish-grading . . . and doing dozens of "chores" scattered over a wide work area . . . your best bet is today's improved 218-hp, 17-mph, rubber-tired LeTourneau-Westinghouse Tournatractor®.

Crawlers to "lug" . . . tires to "run"

To handle your work at lowest cost you'll want to team L-W Tournatractors and crawlers in proper balance . . . using crawlers to "lug" and Tournatractors to "run."

Of course, as every project varies, you can't work out an exact mathematical formula between crawlers and rubber tires. Start with rubber-tired tractors where you obviously need most of their speed and maneuverability. Then, extend your rubber-tired percentage as you find it profitable for your operation. Keep in mind, as you plan, the growing importance of mobility in today's bigger, large-area dirtmoving jobs.

Some contractors say a tractor fleet should be evenly balanced . . . half "track," half "rubber." Others find that one Tournatractor does the work of two crawlers on their particular operations, and plan accordingly.

We've pictured here, some typical circumstances where a work-and-run tractor-on-rubber helping on your contracts, will bring you maximum profit.

Cuts emergency drainage ditch

Rain forecast for tonight . . . could easily flood poorly-drained cut in spongy clay . . . could side-line your production fleet for days. In 10 minutes, speedy Tournatractor drives 2 miles . . . soon digs drainage ditch, then smooths cut and haul roads to eliminate water pockets. No production delay today! And, come heavy rains tonight, the dirt will still roll on schedule tomorrow!

CT-1517-DC-2

LW

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

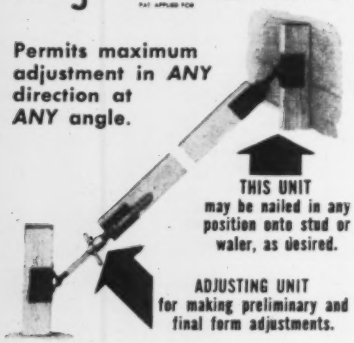
Where quality is a habit

FOR QUICK AND POSITIVE FORM ALIGNMENT

New! **SUPERIOR**

Adjusta-Brace

Pat. Applied For

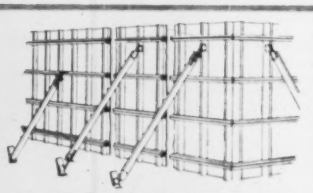

Permits maximum adjustment in ANY direction at ANY angle.
THIS UNIT may be nailed in any position onto stud or waler, as desired.
ADJUSTING UNIT for making preliminary and final form adjustments.

Providing a swivel action for quick positioning and adjustment, the Superior Adjusta-Brace consists of two units, connected by a 2 x 4, 2 x 6 or a 1" i.d. pipe. Either unit may be attached to the wall form, or to the stake, but it is usually more convenient to use the Adjusting Unit at the stake.

The Adjusting Unit has a patented double-wing nut, working on a 1" diameter rod, with an adjustment of 12". The design of this bracket and the method of attachment are such that it works as a universal joint to take any required position. The companion non-adjusting unit is also designed to take any position that field conditions may impose.

The Superior Adjusta-Brace is light in weight, durable, and inexpensive. Contractors report substantial savings in time and labor compared to the conventional method of bracing.

Write for prices & Bulletin AB-1.



VARIOUS METHODS OF USING SUPERIOR ADJUSTA-BRACE
Nailing brackets may be fastened to stud or wale, and stake.

SUPERIOR
CONCRETE ACCESSORIES, INC.
9301 King St., Franklin Park, Ill.
New York Office
39-01 Main St. Flushing 54, N. Y.
Houston Office
4101 San Jacinto, Houston 4, Tex.
West Coast Plant
2100 Williams St., San Leandro, Calif.

. . . Vibrated soil

not homogeneous, but existed in layers of varying gradations.

Nearby deep excavations indicated many very distinct strata with remarkable differences in density and gradations, ranging from a fine uniform sand to a coarse sand and gravel. Since each different gradation of soil has a different minimum and maximum density, it was impossible to determine relative density by analysis of a single relative density curve.

The soils were classified into three predominant categories, and a relative density curve was established for each category. It was necessary to classify visually each sample of soil taken for relative density tests into one of the three established categories. Because of the large variations in soils, it was also necessary to interpolate from the established relative density curves in the case of some in-between soils.

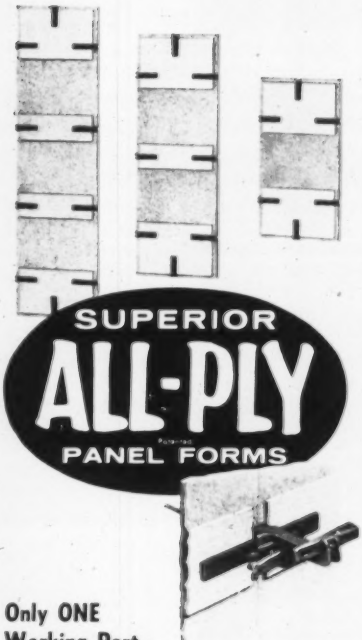
• **Soil not easily tested**—Final analysis of all test results indicated consolidation of the subsoil from an original relative density of 40 to 60% to an average minimum relative density of 85 to 90% in the area where 70% minimum relative density was specified.

As an additional benefit of the increased density, the general contractor in building the substructure was able to maintain vertical walls of excavation for those footings located below the surface of the compacted soil and to construct those footings without side forms.

The total cost of the soil consolidation, including both first and second stages of compaction, hauling and placing of fill sand, and the cost of field testing, was $50,040. The unit prices quoted for adjustment of quantities of compaction were 6.6 cents per cu ft for 70% minimum relative density and 9.3 cents per cu ft for 85% minimum relative density. The first stage of compaction was completed in three weeks time; the second stage of compaction required two additional weeks at a later date.

The new 33,000 kw power plant, being built for the Corn Belt Power Cooperative of Humboldt, Iowa, was designed by Stanley Engineering Co., Muscatine, Iowa. Solution of foundation problems was the responsibility of the authors. D. C. Petersen prepared the specifications on the compaction work.

The general contractor for the building substructure was Jens Olsen & Sons Construction Co., Waterloo, Iowa. Vibroflotation Foundation Co., Pittsburgh, handling the compaction subcontract. E. D'Appolonia Associates were in charge of field testing.



Only ONE Working Part...

THE COMBINATION CLAMP

Aligns and Locks Form, Receives Tie Rod, Holds Liner, and Provides Shelf.

SIMPLICITY — any crew with minimum experience will be able to make fast progress.

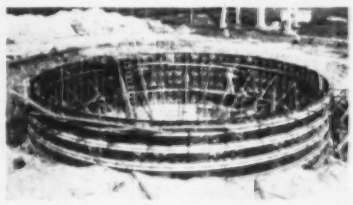
ONE WORKING PART — does 4 separate jobs.

ONLY ONE TOOL NEEDED — a hammer.

SUPERIOR All-Ply Panels are used in all types of construction—for forming ordinary residential foundations to intricate high walls.

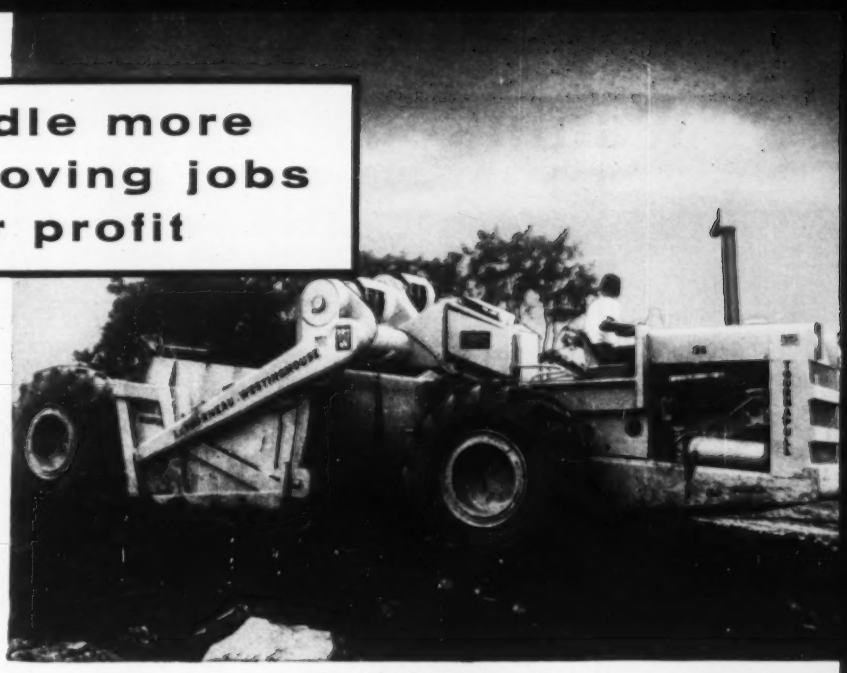
The great strength and rigidity of All-Ply Panel Forms are provided by exterior grade 1⅛" plywood, backed at strategic areas with ½" plywood. Forms weigh less than 5 lbs. per sq. ft. and are easily handled by one man. A hammer is the *only* tool required for erection and stripping. The absence of frames permit easy stacking and transporting in minimum space. Long life and many re-uses are assured.

Write For New 8 Page Bulletin AP-59



SUPERIOR
Concrete Accessories, Inc.
9301 King St., Franklin Park, Ill.
New York Office
39-01 Main St., Flushing 54, N. Y.
Houston Office
4101 San Jacinto, Houston 4, Tex.
Pacific Coast Office and Plant
2100 Williams St., San Leandro, Calif.

How to handle more small dirtmoving jobs ...at bigger profit



• Site improvement

Want to grade a subdivision?... level a parking lot?... dig a big basement?... fill a swamp?... grade a side road? On small and medium-size earthmoving jobs, maneuverable, roadable D Tournapull® with 9-yd. scraper will move your dirt at lowest-net-cost-per-yard.

Maneuvers fast in close quarters

This LeTourneau-Westinghouse D Tournapull works easily and fast between houses, close to foundations, between trees. In tight quarters, it can cut and fill closer, grade more accurately than crawler-drawn or bigger self-propelled earthmovers. With 90° geared electric-steer on kingpin, D Tournapull turns sharply... makes continuous U-turns in less than 25 feet.

In soft going, exclusive L-W power-transfer differential keeps pulling power on the drive-wheel with better traction... keeps Tournapull working where other haulers bog down. Big tires roll easily over rough, rutted, or rocky terrain... spread weight for fast turns and travel over soft ground... will not damage curbs or walks.

Big output for its size

This Tournapull self-loads... may be push-loaded by tractor or another "D", to heap capacity payloads fast. Unit accelerates quickly... normally hauls at 11.9 mph to 20.7 mph ... spreads on-the-run in lifts accurate to ½ inch. On return and travel, "D" speeds up to 29.5 mph.

143 hp "D" hauls big yardage because it works fast... maneuvers fast... earns quick money as a one-man dirtmover on a wide variety of small yardage assignments. This 9-yd. Tournapull can also fill-in with your bigger scrapers, for profitable heavy production.

Roadable without permit

One job completed, you can quickly move 29.5 mph "D" to another project. 10 miles is less than half an hour away. This 9-yd. rubber-tired scraper is only 8 feet wide, weighs less than 9 tons per axle... is roadable without permit in all 48 states. It handles easily in city and suburban areas... travels safely in traffic. It can move 3 or 4 hundred yards of dirt in the extra time it would take a crawler and scraper to move in.

And whenever you sell your "D", you'll find you've a ready market, high trade-in... the lowest ownership cost on your records.

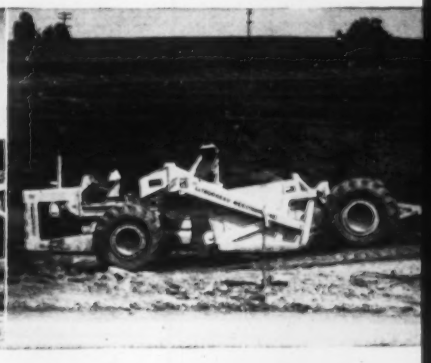
Call or write for an early demonstration. No obligation.

DP-1560-DC-1

• Road and street work

• Subdivision grading

• Building excavations



LW

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

Wahluke Siphon Irrigates 100,000

Nearing completion in Washington is a 15½-ft-dia, three-mile-long siphon that will furnish irrigation water for some 100,000 acres near the Atomic Energy Commission's Hanford Plant. The work is part of the Bureau of Reclamation's Columbia Basin Irrigation Project—the million-acre project that centers around Grand Coulee Dam.

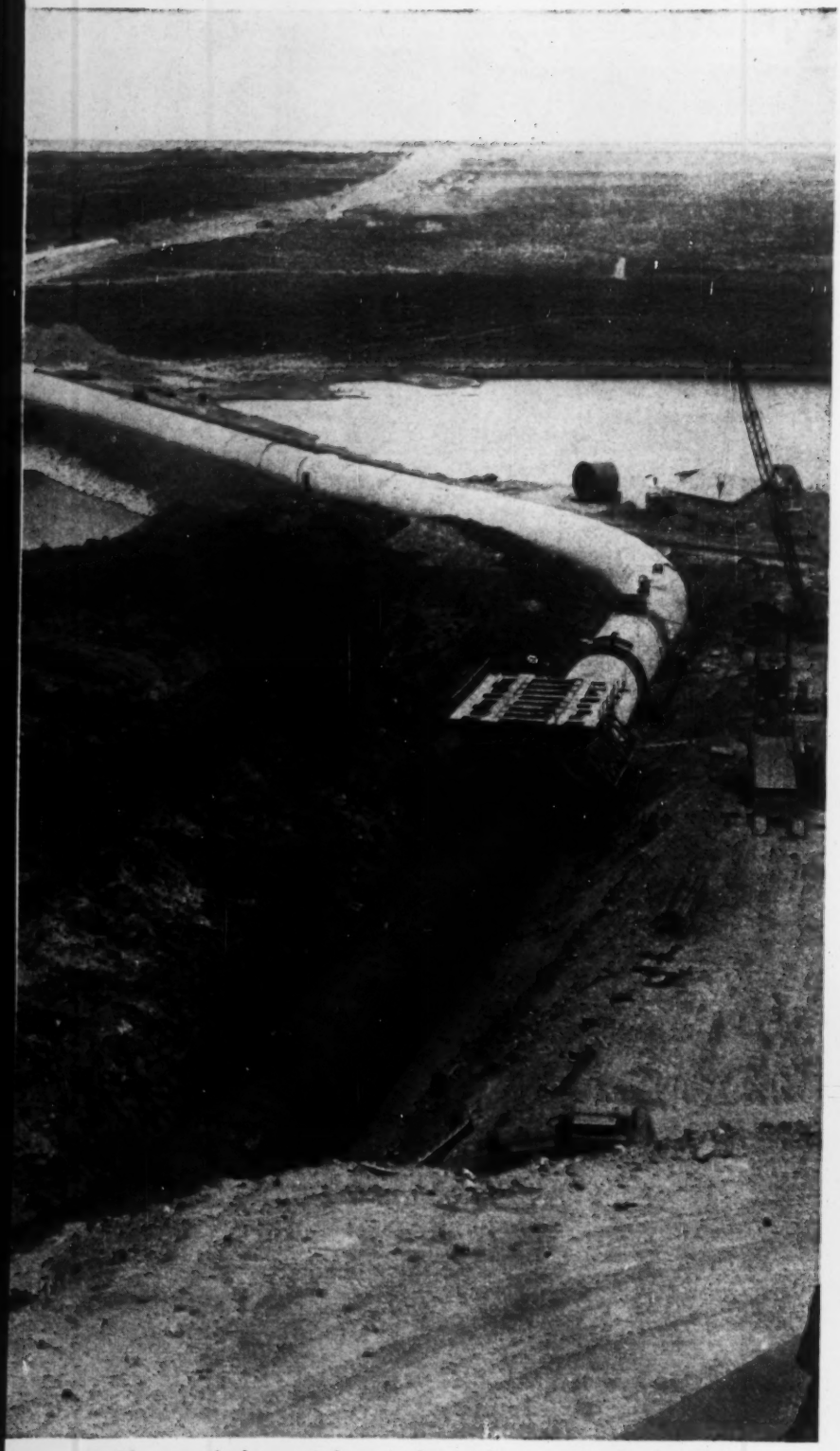
The new structure—the Wahluke siphon—will provide water for Wahluke slope, just across the Columbia River from the AEC installation.

When the Hanford plant went into operation during World War II, nearly 300,000 acres of land were restricted. Of this, 165,000 acres are irrigable.

In 1953 AEC released 87,000 acres, permitting start of work in this area. And early this year the commission released an additional 105,500 acres.

Still restricted are an 88,000-acre control zone—of which 47,000 acres are irrigable. This land will remain restricted as long as the Hanford reactors are in operation.

Wahluke siphon is part of a $19-million Wahluke slope construction program that started in 1956. The $6.2-million siphon contract is by far the largest single job in the program. It's



Three-mile-long siphon is located near Hanford, Wash.

Gantry on rails supports slip form

Acres

held by E-W Construction Co. of Eugene, Ore.

The siphon includes 2,500 ft of steel pipe from ⅞ to 1⅛ in. thick. This pipe is in a lake-crossing section at the low point of the line and is supported on concrete piers 120 ft apart.

An additional 6,000 ft of the siphon has ⅜-in.-thick steel liner plate surrounded by a 15-in. thickness of concrete. The rest is unlined reinforced concrete of similar thickness.

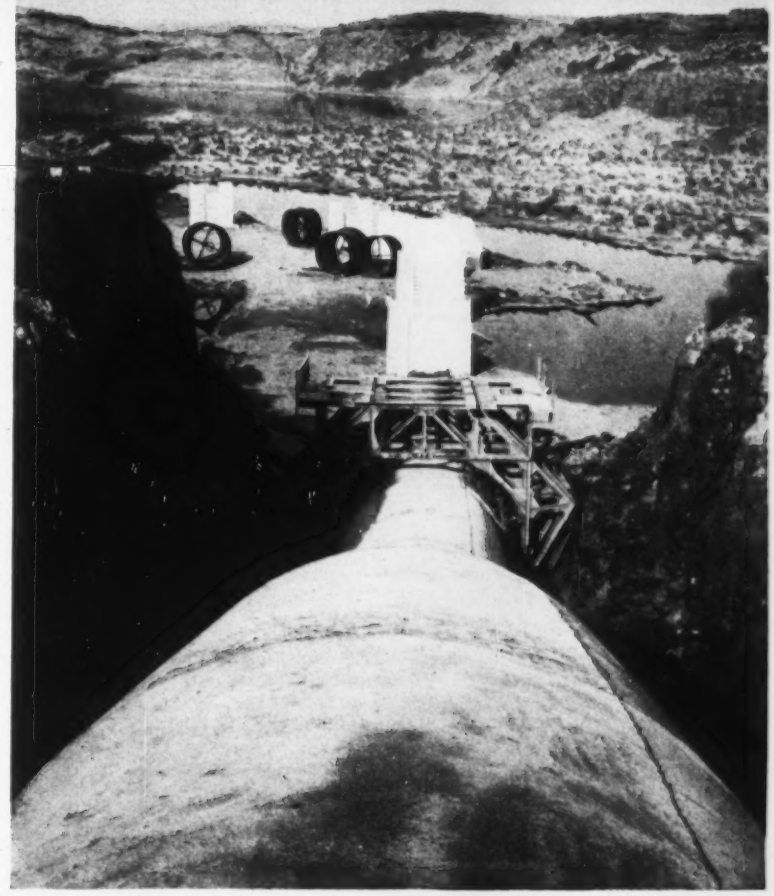
After reinforcing steel was placed on the monolithic section, concrete crews were able to cast the barrel in 24-ft sections at the rate of two a day. Crews used two sections of steel movable forms, carried by rail mounted gantries. The retractable, hinged sideforms were moved in and out by jacks. Inside forms were also rail mounted.

On the steel-lined sections, the two 24-ft forms were combined to make a 48 ft form. No inside form was necessary for the lined sections.

The job required 365,000 cu yd of excavation, including 70,000 cu yd of rock.

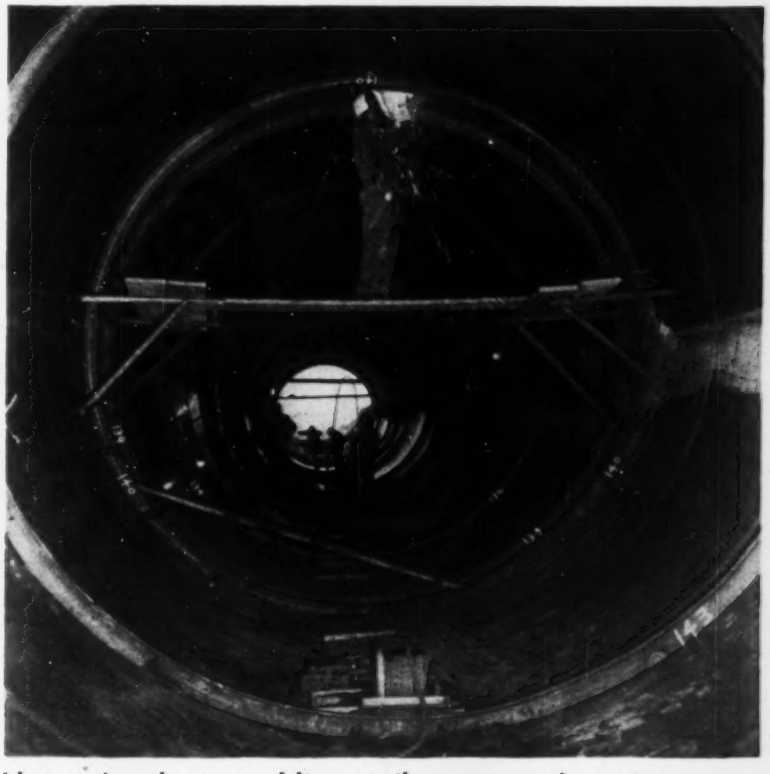
After grading, a gravel base up to 6 in. thick was placed in some areas.

Steel liner sections and the steel



Piers, on 120-ft spacing, carry steel tube siphon over lake.

for the line.



I-beam rings brace steel liner until concrete casing sets.

TRU-LAY *flexible* PUSH-PULLS

FOR

Remote Control Jobs on a great variety of Construction Equipment

Adaptability to all sorts of mechanical situations explains, in large measure, the wide-spread use of TRU-LAY PUSH-PULLS on tractors and their accessories, power shovels, winches, road graders, road oilers, dump trucks, snow plows, engine-driven pumps, rock crushers and other construction equipment.

These dependable Push-Pulls are used for the remote control of hydraulic and air valves, brakes, clutches, transmissions, throttles, chokes, governors, power take-offs, and many other applications.

TRU-LAY PUSH-PULLS are precision products, not gadgets. They provide positive remote-action whether anchorages are fixed or movable . . . for light loads or loads up to 1,000 lbs. . . . and they are effective over short or long distances, up to 150 feet or more.

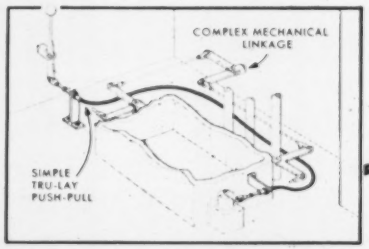
TRU-LAY PUSH-PULLS are dependable and accurate even under the most adverse conditions

They perform effectively under extremes of heat or cold . . . from jet engine temperatures to 70° below zero F. The inner, working member (lubricated for life during assembly) is fully protected by the tough, flexible conduit. Abrasive dusts, dirt and moisture are sealed out. Fittings are cold-swaged to make them integral parts of the control unit. It is a matter of record that we have never heard of a TRU-LAY *flexible* PUSH-PULL wearing out in normal service. Use of these versatile, simple and rugged controls increases ease of operation and means the virtual elimination of maintenance.

Advantages of Tru-Lay Push-Pull flexibility and simplicity are pictured below

Simplicity vs Complexity

Compare the TRU-LAY PUSH-PULL cable in illustration with the mechanical linkage. PUSH-PULLS are simple, have but one moving part, are noiseless and give lifetime service accuracy. Linkages are complex, made of many parts; they wear at many points. Their use brings increased backlash, lost accuracy and vibration rattles.



"Solid as a rod but *flexible* as a wire rope" is a good description of TRU-LAY PUSH-PULL REMOTE CONTROLS. This flexibility makes it possible to snake around obstructions . . . permits the ideal arrangement of all control elements . . . greatly simplifies installation of controls by reducing the number of working parts . . . damps out noise and vibration. Versatile, accurate, adaptable, rugged . . . they are the ideal remote controls for construction equipment.

Bulletin DH-461
will answer your further questions.
Write for a copy without obligation

ACCO

Automotive and Aircraft Division
AMERICAN CHAIN & CABLE

TRADE MARK

601-F Stephenson Bldg., Detroit 2
6800-F East Acco Street, Los Angeles 22 • 929-F Connecticut Ave., Bridgeport 2, Conn.

WOOD TOWERS support portion of steel tube during pier spaaning.

pipe for the lake crossing were welded. I-beam support rings were used to keep the proper shape of the liner during concrete placing.

Principal subcontractors are Lewis Construction Co., Kennewick, Wash., diversion work and excavation; Gilmore-Skoubye Co., Oakland, Calif., furnishing and placing 12 million lb of reinforcing steel; Lewis Hopkins Co., Pasco, Wash., placing 45,000 cu yd of concrete for the siphon and other structures; Gunderson Brothers Engineering Corp., Portland, furnishing steel pipe and liner; Steel Construction Co., Portland, erection of pipe and liner; and Gustafson Coating and Blasting Co., Spokane, painting.

A. J. Thomas, construction engineer for the Eltopia, Wash., branch office of the Bureau of Reclamation, is in charge of the project for the bureau. Supervisory personnel for E-W Construction Co. include Lloyd Shilling, project manager, and Kenneth Beck, superintendent.

• **Long range program**—The Columbia Basin Irrigation Project started 25 years ago with initial work on Grand Coulee Dam. The irrigation works were delayed by World War II. But now water is available to 383,000 acres. And about 240,000 acres actually used water during the 1958 season.

The present irrigation repayment contracts have an expenditure ceiling that will permit water to be supplied to 455,000 acres by 1963. If these contracts are revised, the Bureau of Reclamation is confident that eventually there will be water service to a million acres of land.

Total construction expenditures up to fiscal '59, have been $524 million. Of this amount, $248 million has been invested in project irrigation works. Annual construction appropriations for recent fiscal years are 1959—$9.7 million; 1958—$10 million; 1957—$14 million; and 1956—$12.5 million.

for the next 60 days

your Case Industrial Dealer is offering a special two-way deal on a **CASE**® **TERRAMATIC**® **DRIVE CRAWLER** you can't afford to pass up!

Deal no. 1

FREE 4-HOUR DEMONSTRATION

Deal no. 2

TRY ONE FOR 10 DAYS

Turn the page for full details

If habit-buying is putting you in to "make-the-break" to

Your CASE Industrial Dealer will prove the profit-making difference. Call him now ...tell him where...name your deal!

Deal no. 1

FREE 4-HR. COMPARISON DEMONSTRATION

Your Case Dealer will bring a Case Model 800 or 1000 Terramatic Drive crawler to your job for a *half-day of free work* — no obligation. Compare it with your present equipment for extra ease and simplicity of control. Compare the extra advantages of no clutching, no stalling, no loss of hydraulic power.

Compare the extra speed of Terramatic *in motion* power-shifting with your present *stop-and-shift* machines. Compare the extra maneuverability of full power-turns and counter-rotating-track 360° spin-turns, with the "dead-track" turns of your present equipment.

If this FREE half-day demonstration doesn't convince you, tell your Case Dealer you'll take a go at "*Deal No. 2*".

Deal no. 2

TRY ONE FOR 10 DAYS

Your Case Dealer is so confident that you will recognize the profit-making advantages of switching to Case Terramatic Drive crawlers that he is making this additional 10-day offer.

For less than the cost of running your own equipment, he will put a Case Terramatic Drive unit on your job for 10 full working days. Take your choice of a 1½ or 2-cu. yd. tractor-shovel, power-angling dozer or power-tilting bulldozer. Put your own operator on it. Clock it. *Keep comparative cost and production records.* If, at the end of 10 days, you don't agree Case is the *best money-maker* you ever had, your Case Dealer will pick it up — No questions asked.

Clock the **CASE** Terramatic Drive 10-ft. power-angling dozer

Watch the "live" rolling action of that big curved blade as the operator sidecasts a huge windrow of dirt. See how easily he holds a true course with independent power-control on each track. Watch him swing his blade to the other side, as he makes his turn at the end of the pass — without leaving the tractor seat. Now back again, still pushing the windrow of dirt in the same horizontal direction, instead of backing up with an empty blade. Your stop watch will tell you he has increased your production by more than 50%.

By any standard of measurement — **Time** to do a job... no other comparably-sized piece of equipment you now own can

a profit-squeeze, now is the time

CASE® TERRAMATIC® DRIVE

Clock the CASE Terramatic Drive 2-cu. yd. tractor-shovel

See how smoothly that big bucket bites into the bank and comes up with a heaped load. Listen to that powerful diesel engine purr . . . never lugs down, always maintains full hydraulic power. Watch the operator, without an instant of lost motion, flip two hydraulic levers, step on the accelerator . . . back out . . . counter-rotate . . . and glide smoothly up to the truck or stockpile. No time lost clutching or shifting . . . No needless jockeying. Reverse speeds are twice as fast as conventional crawlers. It all adds up. You get 2 trips to 1 for competitive units.

Clock the CASE Terramatic Drive 8¾-ft. power-tilting dozer

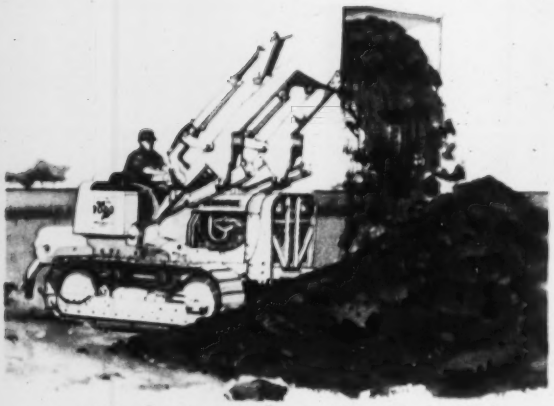
See how easy it is for the operator to tilt the blade from the seat to any ditch-angle. Watch him start the cut on the first pass with up to 12½ tons of push — automatically matched to the load. See how fast the sharp blade tip slices through hardpan and tree roots . . . grubs out big boulders . . . without clutching or down-shifting. Watch your operator spin that husky 8-ton rig around with "turn-table ease" — tilt the blade to the other side on-the-go — and continue cutting at same angle coming back. No empty passes, twice as much work done!

Yards of dirt moved . . . or **Cost** of work performed — you'll find compete with a **CASE** TERRAMATIC DRIVE CRAWLER.

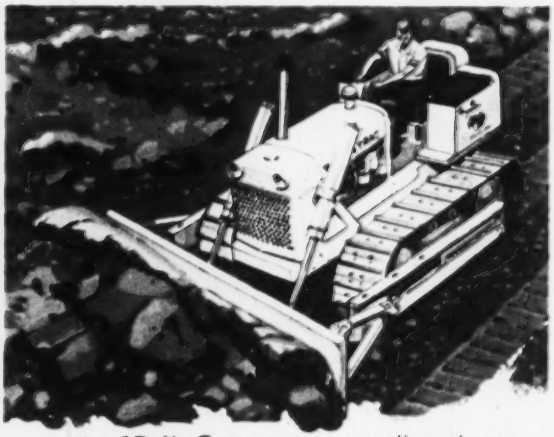
DECIDE NOW to "make-the-break" to... CASE TERRAMATIC® DRIVE

Before you leave this page, pick up the phone and call your nearest participating Case Industrial Dealer. If you don't know his name, mail handy coupon below. This special FREE half-day demonstration and *10-day trial offer* is the ONE SURE way to prove to yourself the *profit-making difference* between the conventional equipment you now own and a *years-ahead* Case Terramatic Drive crawler.

Choose the machine you want to clock . . .



. . . the 2-cu. yd. Case tractor-shovel



. . . the 10-ft. Case power-angling dozer

(Also available with ripper, brush rake, log fork and winch)

. . . the 8¾-ft. Case power-tilting bulldozer

MAIL *for quick action*

J. I. CASE CO., Dept. H1419, Racine, Wis., U.S.A.

OK, I'm willing to try Case Terramatic Drive

Please have your Dealer arrange: ☐ Free ½-day Demonstration ☐ 10-Day Trial Lease

on a ☐ Tractor-Shovel ☐ Tilt-Dozer ☐ Angling Dozer

Name_____

Title_____

Company_____

Address_____

City_____

State_____

Litho in U.S.A. CT-CL-368N

CASE®

J. I. CASE CO., RACINE, WIS.
World-wide sales and service

International

VTOL Airliner Carries a Bridge

The British Army's Royal Engineers recently used a 50-passenger vertical take-off and landing (VTOL) airliner to hoist a 103-ft-long bridge section, carry it three miles and set it in place over a river.

The military engineers used the recently-developed Fairey Rotodyne VTOL aircraft for the demonstration. A 90-ft helicopter rotor enables the plane to take off vertically. Once in the air, the plane is powered by two conventional propellers mounted on its stubby wings.

The production version of the Fairey Rotodyne will be capable of carrying loads of more than 20,000 lb at speeds up to 200 mph.

The bridge section used for the experiment was 10 ft wide and 7 ft high. It was not part of an actual bridge, but a section devised for the test. Temporary wooden fins were attached to the section to stabilize it and prevent yawing.

Cairo Collegians to Shave In Solar-Heated Water

Solar energy will heat water for 6,500 students at the world's oldest university, Al-Azhar Theological University, Cairo, Egypt.

University administrators decided that solar-energy heaters would cost only a quarter the price of butane heaters, standard in Egypt.

The heaters will go on the roofs of 41 apartment buildings housing 6,500 students in Al-Azhar University City. Each unit will heat 130 gal of water a day to between 100F and 140F.

WELDED or RIVETED

STEEL PLATE FABRICATION

- ★ Boiler Casings
- ★ Boiler Breechings
- ★ Flues and Ducts
- ★ Condenser Shells
- ★ Condenser Piping
- ★ Heavy Turbine Housings
- ★ Fan and Blower Housings
- ★ Dust Collector Housings
- ★ Industrial Gas Mains
- ★ Expansion Joints
- ★ Hoppers and Bunkers
- ★ Tanks and Vats
- ★ Pressure Vessels
- ★ Wind Tunnels
- ★ Crane Bridge Girders
- ★ Trolley Frames and Trucks
- ★ Rigid Frames
- ★ Roll-Over Fixtures
- ★ Tank Turrets
- ★ Gun Mounts
- ★ Heavy Truck Bodies
- ★ Engine Frames and Bases
- ★ Crawler Frames
- ★ Press Platens and Beds
- ★ Press Columns
- ★ Heavy Machinery Parts and Assemblies
- ★ Gas Seal Hoods for Blast Furnaces
- ★ Furnace Roof Rings
- ★ Design Conversion of Castings to Weldments

MACHINING

★ Complete Machining Service—Facilities for Heavy Work of Unusual Dimensions

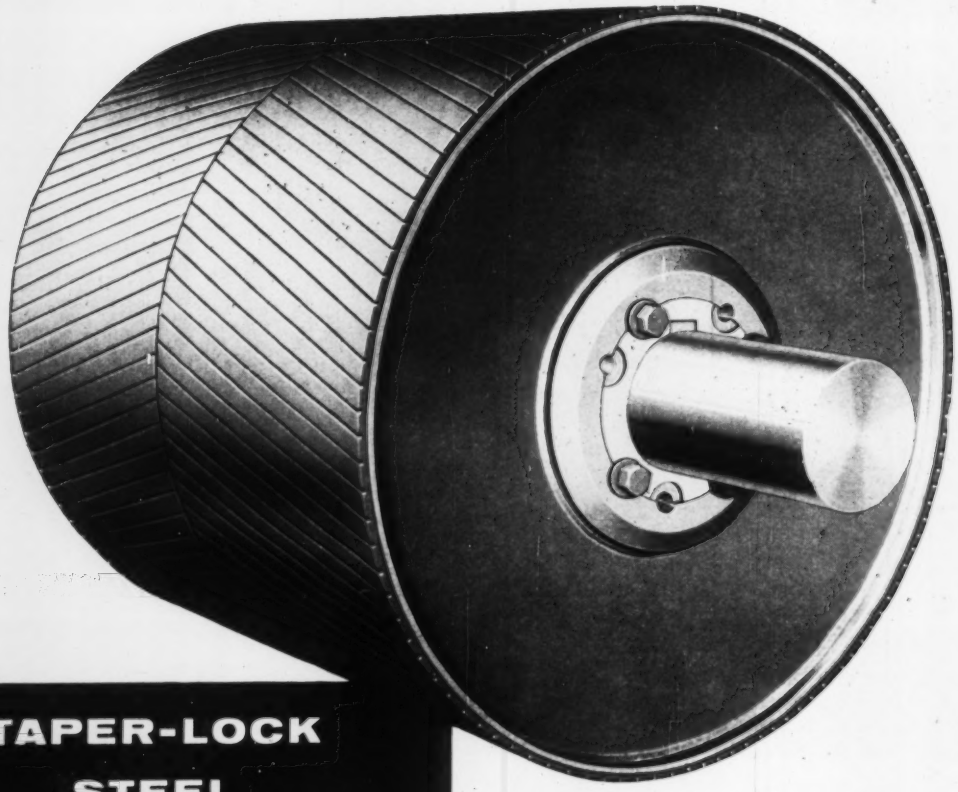
STRUCTURAL STEEL

★ For Buildings, Bridges and Special Purpose Structures

- Drum Gates
- Roller Gates
- Tainter Gates
- Tainter Valves
- Protection Angles

THE R. C. MAHON COMPANY
DETROIT 34, MICHIGAN
Branch Offices in New York, Chicago, Los Angeles and San Francisco

MAHON



TAPER-LOCK STEEL CONVEYOR PULLEYS

Maximum strength with minimum weight...

Unmatched holding power on the shaft...

New mounting simplicity.

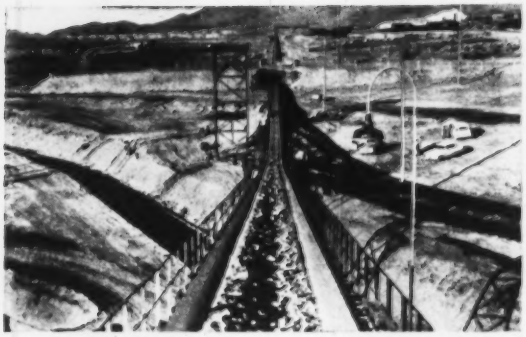
The rims, discs and hubs of these modern conveyor pulleys are *steel*—and they are fused together into jointless drum construction for (1) maximum strength with minimum weight, (2) exclusion of dirt, water, steam, (3) terrific shock resistance.

With the patented Dodge Back-up Bar, welds of full rim thickness are achieved—and the ultimate in strength is assured by submerged arc process welds.

Taper-Lock Steel Conveyor Pulleys *hold*. Taper-Lock provides the equivalent of a shrunk-on fit—there is no "walking" on the shaft. Mounting and demounting are simple. Pulley and bushings mount as a unit. Alignment is easy. And the tapered bushing is wedged into place merely by turning the mounting screws. It is "unlocked" by using the mounting screws as jack screws.

Available in diameters from 6 inches to 8 feet—all face widths. Standard or special rubber lagging available. Ask your local Dodge Distributor—or write us for bulletin.

DODGE MANUFACTURING CORPORATION, 6900 Union, Mishawaka, Ind.



97 Taper-Lock Steel Conveyor Pulleys are used in this famous conveyor system engineered, manufactured and erected by Hewitt-Robins, Inc., at the Southern Pacific's causeway construction across the Great Salt Lake.

DODGE

of Mishawaka, Ind.

CALL THE TRANSMISSIONEER—your local Dodge Distributor. Factory trained, he can give you valuable help on new, cost-saving methods. Look in the *white* pages of your telephone directory for "Dodge Transmissioneer."

George Leonard Retires After 26 Years With TVA

George K. Leonard, chief engineer of the Tennessee Valley Authority, retired last month, ending 26 years of TVA service, mostly in a construction capacity.

Before becoming chief engineer in 1956 he had been chief construction engineer for six years, during the period when TVA's seven steam generating plants were built. The plants add 7,250,000 kw to TVA's power generating capacity.

Before that Mr. Leonard had been either construction engineer or project manager on most of the large hydroelectric projects that TVA built between 1933 and 1950.

A civil engineering graduate of the University of Nebraska, Mr. Leonard worked for the state of Nebraska as a bridge designer, later becoming assistant state engineer. From 1921 until he went with the TVA, he was associated with Woods Brothers Construction Co., first as contracting engineer and later as general superintendent.

Bernard Werner Directs Baltimore Public Works

Bernard L. Werner has been named director of public works for the City of Baltimore for a four-year term at $17,500 a year. He will also serve on the five-man Board of Estimates, the city's top policy-making body.

Mr. Werner has been with the city for over 30 years and has headed the Bureau of Water Supply for the last five years. He is a graduate of Carnegie Tech and the Armed Forces Industrial College.

Careers

Business

Earl S. Evans, engineer in-charge of the project section, has been promoted to chief engineer of the steam turbine department at Allis-Chalmers, Milwaukee. He joined Allis-Chalmers in 1951 after working with Ebasco International.

Carl H. Wittenberg, partner and cofounder of Twaits-Wittenberg Co., Los Angeles, contractors and engineers, has acquired full ownership of the firm. The company is currently working on more than $40-million worth of construction in the Los Angeles area.

Orlen E. Baker is manager of the new petroleum sales division set up by Infilco, Inc., Los Angeles. He directs company research and field testing. Mr. Baker, a chemical engineer, has made extensive studies of water and brine treatment for the secondary recovery of oil.

Wilson C. Rich, Jr. takes over as chief process engineer for the J. G. White Engineering Corp., New York City. Mr. Rich, an independent consulting engineer for five years, has also worked with Esso Research and Engineering Co., and the Carbide and Carbon Chemicals Corp.

Reid S. Parramore and **Eugene Smith** have been appointed regional sanitary engineers for Yeomans Brothers Co., Melrose Park, Ill., manufacturers of pumping and sewage treatment equipment. Mr. Parramore will work out of Wilmington, Del., serving Pennsylvania and the coastal states from Maryland to South Carolina. Mr. Smith will have headquarters in New York City and will service New England, New York and northern New Jersey.

John F. Schrunk assumes the dual position of assistant manager of Cornell Manufacturing Co., Portland, Ore., and manager of Water Engineering Consultants, an allied company. Before coming to Cornell Manufacturers, he spent seven years as a government engineer working on water projects throughout the world.

Everett P. Welch, a civil engineer, takes over as manager of engineering services for the Pennsylvania Power & Light Co. after serving six years as assistant manager.

Professor John J. Hennigan, Jr., of Syracuse University's department of civil engineering, has become affiliated with K. G. Woodward & Associates, consulting engineers, Webster, New York. He has also served as assistant city engineer for Summit, N. J., and director of sanitation for Syracuse, N. Y.

BEN H. PETTY
Renowned Engineer and Author

WISHFUL THINKING

Who *knows* what the average life of any pavement will be in the future? Houdini type guessing or wishing certainly is unreliable.

Specific examples of exceptionally long life for slab pavement may be cited, while overlooking failures at say 15 years of life.

Let's hope that, under present advanced design and construction specifications, all pavement types will have much longer and satisfactorily useful lives than during the past.

But to say that rigid type pavements will have "50 years life and more," as current advertising states, is wishful thinking, pure and simple.

In what condition will the riding surface of that rigid type pavement be, after even half of that *hoped for* life?

A typical example is the more than 100 miles of the original 160-mile Pennsylvania Turnpike, resurfaced with heavy-duty Asphalt paving, after only 16 years of life.

Many similar examples may be cited. All such glaring examples tend to discredit the over-zealous claims for concrete pavements.

Ben H. Petty

Presented as a Public Service by
THE ASPHALT INSTITUTE

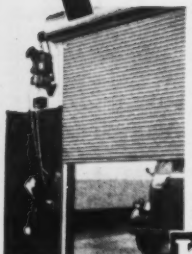
WATER WORRIES?

Have them controlled efficiently, economically, by dewatering specialists from the John W.

STANG *Corporation*

Los Angeles • Omaha • Mobile • Tacoma

Kinnear Rolling Doors



Kinnear *originated* the upward-acting door with the curtain of interlocking steel slats. For more than half a century, Kinnear has built doors *exclusively*—your assurance of highest quality. Write for Kinnear catalog!

The KINNEAR Manufacturing Co.

KINNEAR ROLLING DOORS *Saving Ways in Doorways*

1820-40 Fields Ave., Columbus 16, Ohio

1742 Yosemite Ave., San Francisco 24, Calif.

New Products

Pedestrians Are Directed By Neat, Trim Signals

The MP-120 pedestrian traffic signal is designed for crossings 50 to 60 ft wide.

"Walk—Don't Walk" legends can be replaced with arrow indicators. Prismatic lens for the unit is 9x11 in. Crouse-Hinds, Syracuse 1, N. Y.

Plastering Machine Allows Varied Flow for All Jobs

The "Spray King" plastering machine has a double-piston pump operated by a 12½-hp Wisconsin engine. It allows a maximum coverage of 450 sq yd per hour with material ½ in. thick. This rate of flow can be maintained through up to 150 ft of hose, the maker says.

Flow variations are made with a three-speed transmission with overlapping engine rpm control. This allows the operator to get the exact volume required for the job at hand. An extremely low ratio in the lowest gear fits the machine for acoustic and fine texture work.

Ample reserve power and a direct-drive train have been designed into the Spray King for minimum vibration and long job life.

The machine is built with a 10-cu ft hopper and rubber wheels, plus a drawbar for highway towing. Challenge Mfg. Co., Los Angeles, Calif.

Teardrop Curves Simplify Highway Design Drawing

A set of teardrop curves is offered to simplify highway interchange design. They can be used in any layout work involving circles and arcs, and are said to be especially effective in short-radius work.

The templates do away with the time-consuming process of drawing with a combination of curves to get one curve, the manufacturer states.

All curves in the series have double tangents, two radial lines and a hole for marking the center of the arc.

The templates are made of transparent plastic. Available singly or in sets as radius or degree curves to the Arc Definition, 11 curves to the set. Keuffel & Esser Co., Adams & Third Streets, Hoboken, N. J.

Metal-Panel Buildings Have Prefitted Connections

A low cost, all-steel, portable maintenance building, designed for "do-it-yourself" assembly by an unskilled crew, is available for construction companies.

The "Stran-Master" comes in a range of widths from 12 to 120 ft. No cranes or heavy equipment are needed for erection, the manufacturer states. There are no nails or spikes to drive; all framing connections are bolted through factory-drilled holes.

The low-profile building has ribbed wall and roof panels available in six colors as well as the standard metal finish. The new color coating is a double protective layer of vinyl-aluminum applied direct to the zinc-coated steel panels at the factory. It is not paint and will not chip, peel, fade or crack, the maker reports. Stran Steel Corp., Detroit 29, Mich.

Portable Air Compressor Powers Light Wagon Drill

A single stage, piston type, 125 cfm portable air compressor is said to have enough 100 psi air to power two heavy or three medium breakers, one medium or two light sinkers or one light wagon drill.

The engine and compressor of the machine are built as one unit. Because it has only one crankshaft and one crankcase, the need for a clutch or coupling is eliminated. Engine speed varies according to air demand. A 12-volt electrical system aids cold weather starting. Le Roi Div., Westinghouse Air Brake Co., Milwaukee 1, Wis.

More than five miles of extra heavy galvanized Wrought Iron Pipe, from 1½-inch to 3½-inch, were used in the construction of the Treasure Island, Florida, Sewage Collection Plant.

Wrought Iron Pipe provides a bulwark against corrosion at Florida's Treasure Island Sewage Treatment Plant

Included in this system are eight pneumatic ejector lift stations which are supplied with compressed air transmitted in Wrought Iron Pipe from the blowers and storage located at the Treatment Plant.

Compressed air piping used in the activated sludge process must provide maximum operating life, minimum maintenance.

At the new Treasure Island, Florida, Sewage Treatment Plant, consulting engineers specified corrosion-resistant Wrought Iron Pipe for this service. Severe internal corrosion and clogging from loose rust occur with ordinary piping materials in this service. But not with Wrought Iron. Its corrosion product is dense and highly adherent, and actually *protects* the underlying metal from further corrosive attack.

Today, specifiers and plant operating men are getting a Wrought Iron that is the most versatile material yet developed to help fight corrosion. New 4-D Wrought Iron faces corrosive attack with far greater resistance, even, than standard Wrought Iron, its dependable predecessor.

4-D was achieved by substantially increasing the deoxidation of the base metal, slightly increasing the phosphorous content and using a more siliceous iron silicate. 4-D is available now from your distributor. Write us for new 4-D Wrought Iron literature. A. M. Byers Company, Clark Building, Pittsburgh 22, Pa.

City of Treasure Island Sewage Plant Improvement
Consulting Engineers: Gilbert W. Clifford & Associates
Piping Contractors: Paul Giuliani & J. E. Milam Co.

BYERS 4-D WROUGHT IRON

TUBULAR AND FLAT ROLLED PRODUCTS

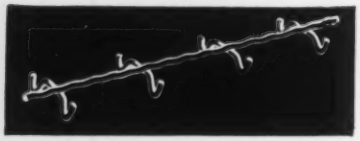
ALSO AMBALLOY ELECTRIC FURNACE QUALITY STEELS AND PVC PIPE AND SHEET

Corrosion costs you more than Wrought Iron

TIME SAVED TWICE! with SYLGAB

Continuous BAR BOLSTER SUPPORTS

1. The right material at the right time. No delays due to late delivery or mixed-up shipment.
2. Designed for speedy, easy installations. Allows fast pouring due to high rigidity.



A RUGGED SUPPORT FOR SLAB REINFORCEMENT

Made in 5' lengths of hard steel wire supporting bar with wire legs spaced either standard 5" distance or directly under each slab rod (4" min.)

•

Member Concrete Reinforcing Steel Institute

•

Manufacturers of Steel and Wire Accessories for Concrete and Fireproof Construction.

SYLGAB

STEEL & WIRE CORP.

79-05 Cooper Ave., B'klyn 27, N. Y.

BEAM CLIPS • SPECIAL COLUMN CLIPS
EXPANSIBLE CLIPS
STRAIGHT AND COIL WIRE
HAIRPIN CLIPS • TOGGLE HANGERS
FORM SPACERS • BAR ACCESSORIES

Request Catalog—Phone or Wire Collect

Steel and Concrete Beam Spans for . . .

Two Virginia Highway Bridges

At $269,993, McDowall & Wood, Inc., Salem, Va., was successful bidder for two bridges on Interstate Rt. 52 in Wythe County, Va., near Palaski. The award by the Virginia Department of Highways was 1.2% below the second and 16% below the high of thirteen bids. H. M. Morecock, Jr., Bristol, is the engineer.

The contract breaks down like this:

Bridge	Approx. Length	Clear Rdwy. Width	Approx. Cost Total	Cost per sf rdwy.
Twin bridge, 12 stl beam spans	298 ft*	30 ft*	$211,143	$11 80
Single bridge, 4 prestr conc beam spans	225.5 ft	24 ft	58,850	10 87

* Each bridge

The steel beam spans for the twin bridge are eight at 47 ft and four at 54 ft. The prestressed concrete beam spans for the second bridge are two at 60.5 ft and two at 51 ft.

Wages include: carpenter $2.00; reinforcing ironworker $1.30; welder $1.78; crane, derrick and dragline operators $2.40; unskilled laborer $1.00; bulldozer operator $2.00; truck drivers $1.25; mechanic $1.65.

1C	McDowall & Wood, Inc., Salem, Va	$269,993
2	Walder & Flournay, Inc., Richmond	273,139
13	B. F. Parrott & Co., Inc., Roanoke	321,701

Bids: 6-3-59 Items	Unit	Quantity	Unit Prices 1 C	2
Twin 12 Steel Beam Span Bridge				
Superstruct, conc cl A, AE	cy	593.2	$60 00	$60 00
steel, reinforcing	lb	97,765	0 12	0 13
structural	ls	job	65,500	65,000
bridge railing	lf	1,184	6 15	6 00
Substruct, conc cl A, AE	cy	924 4	48 00	50 00
cl B, AE	cy	227 4	38 00	45 00
steel, reinforcing	lb	136,584	0 13	0 13
H piles	lf	1,100	5 50	6 00
excavation, struct, cl A	cy	720	3 50	4 00
cl B	cy	237	3 50	10 00
Concrete slab gutter	cy	13 8	10 00	10 00
riprap	sy	1,431	7 50	9 00
Concrete Beam Span Bridge				
Superstruct, conc cl A, AE	cy	193 6	60 00	60 00
steel, reinf	lb	29,721	0 12	0 13
prstr conc beam, 50'9"	ea	10	1,226	800 00
60'3"	ea	10	1,461	1,000
bridge railing	lf	446	6 15	6 00
Substruct, conc cl A, AE	cy	146 3	42 00	60 00
steel, reinforcing	lb	23,051	0 12	0 13
H piles	lf	490	5 50	6 00
excavation, struct, uncl	cy	251	3 00	3 00
conc block slope protect	sy	339	5 00	6 00

Completion schedule: 240 calendar days
Liquidated damages: $35 day

Pedestrian Underpass on Rigid Schedule

Existing utilities and a tight time schedule pose problems for the contractor on this pedestrian underpass and water main gallery job under the Northwest Expressway in Chicago.

Major items in the contract must be completed by Oct. 15 so as not to interfere with necessary paving on the Expressway. Work is for the Department of Public Works and Buildings, Division of Highways, Illinois. R. R. Bartelsmeyer, Springfield, is chief highway engineer.

Keno Construction Co., Inc., Highland Park, Ill., took the contract at $146,554, on a bid 5.8% below the second and 23% below the high bid.

The 225.68 ft reinforced concrete pedestrian underpass will have a 12 ft span and a height of 9 ft. The 80x80-in. precast reinforced concrete flat base water main gallery will be 356 ft long, and will house a 36 in. water main relocation under the Expressway.

Class X concrete must acquire a compressive strength of 3,500 psi and 650 lb modulus of rupture at 14 days. Precast concrete pipe must conform to ASTM specifications C76-57T for reinforced concrete pipe and meet strength requirements for Class IV pipe.

Prevailing wages include: carpenter $3.95; crane operator $3.55; common laborer $3.10.

The bidding included:

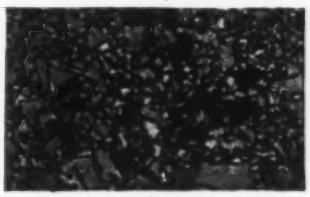
1C	Keno Constr. Co., Inc., Highland Park, Ill.	$146,554
2	E. H. Marhoefer Jr. Co., Franklin Park, Ill.	155,577
7	L. B. Strandberg & Son Co., Inc., Arlington Heights, Ill.	189,848

Bids: 7-2-59 Items	Unit	Quantity	Unit Prices 1 C	2
Conc, class X	cy	596	$52 00	$54 25
Reinforcement bars	lb	80,147	0 13	0 123
Membrane waterproofing	sf	9,950	1 09	1 03
MH, type A, 4'o, with type 1 frame, closed lid	ea	3	300 00	276 00
Catch basin, type A, 4'o w type 1 frame, open lid	ea	1	230 00	382 00
Inlet, type A, type 10 frame	ea	4	145 00	530 00
Storm sewers, CSP, 8"	lf	166	3 92	5 30
ESCP, 18"	lf	67	18 40	29 00
CMP, perf, 8"	lf	726	2 75	3 20
8"	lf	18	2 60	8 50
Manhole, drop	ea	1	3,540	1,506
access	ea	2	400 00	647 00
Trench backfill	cy	412	4 03	6 40
Embankment, porous granular	cy	5,368	4 20	4 15
PC concrete sidewalk, 5"	sf	5,024	0 27	0 55
Ceramic wall tile	sf	3,576	1 64	1 54
Pedestrian barrier	lf	254	9 00	8 53
Water main gallery	lf	356	99 76	126 80
Electric handhole	ea	2	690 00	795 80
Rigid steel conduit, 2"	lf	365	2 90	3 29
Cable, 1 C, #4 AWG, 600V	lf	1,095	0 98	0 71
Service pole instal	ea	1	184 00	191 00
Fluorescent Luminaire, cip	ea	18	207 00	191 00
Service cabinet	ea	1	184 00	313 00
Rigid steel conduit, 1"	lf	300	1 67	2 00
Pull box	ea	18	23 00	21 00
Cable, 1 C #10 AWG, 600 V	lf	1,300	0 40	0 19
Trench & backfill	lf	365	1 15	0 53
Pavement replacement	sy	24	9 60	10 00
Excavation, special	cy	705	4 15	2 82
Sidewalk removal	sf	300	0 18	0 20

Complete: 10-15-59
Liq. dam. $100 day

Longer bit life— with *new* Sandvik Coromant Bits

Sandvik Coromant Tungsten Carbide (Microphoto) Uniformity of size, even distribution of grain are marked. Free from porosity and impurities —therefore stronger, longer-lived.



Low quality Tungsten Carbide (Microphoto) Black marks are contaminations caused by deficient production control. They weaken the carbide, reduce its working life.

NEXT time you buy bits, specify Sandvik Coromant because they give more footage per bit, lower drilling costs. Here's why:

1 Only first-quality tungsten carbide is used —as shown in the microphotos above. This means less wear, longer life and a better job.

2 The bodies are precision-made of high quality alloy steel—tough enough to take the strain throughout the extra-long bit life.

3 The bigger Sandvik Coromant bits are all of X-design, which prevents rifling. No wonder Sandvik Coromant inserts are the most widely used in the world, drilling more than one billion feet every year.

SANDVIK COROMANT bits are supplied through Atlas Copco, the world's largest manufacturer of rock drills, who also supply Sandvik Coromant integral steels — the most widely used in the world — and Sandvik Coromant extension steel equipment.

Sandvik Coromant Detachable Bits are Available in the following Thread Sizes and Bit Diameters

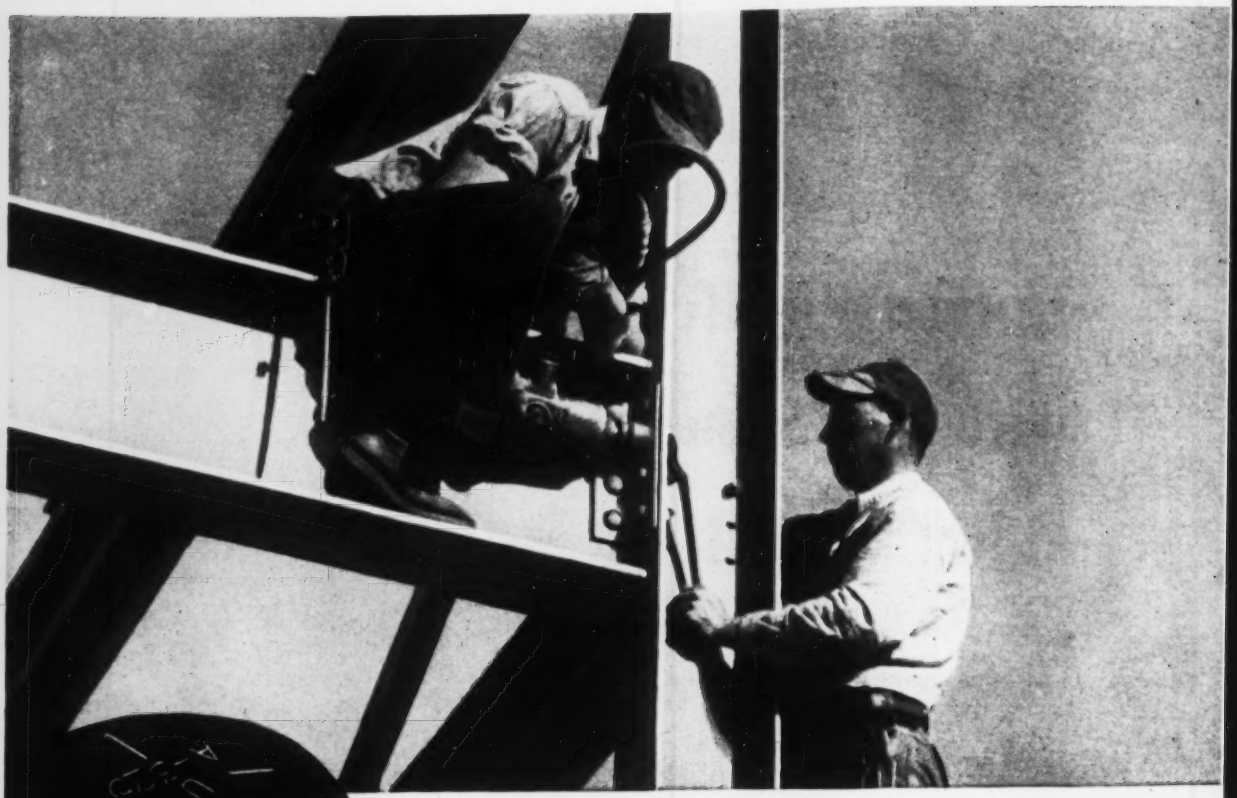
Type	Thread	Available Diameters, in Inches															
		1⅛	1¼	1½	1⅝	1¾	1⅞	2	2⅛	2¼	2⅜	2½	2¾	3	3½	4	4½	5
SHOULDER	TAPER	x	x	x	x													
	F		x	x														
	113		x															
	H			x	x	x	x	x		x								
	115			x	x													
	D						x	x	x	x	x	x	x	x				
	K													x	x	x	x	
BOTTOMING	1" Rope				x	x	x	x		x								
	1¼" Rope						x	x	x	x		x		x				
	400						x	x		x		x						
	1½" Rope											x	x	x	x	x		
	600											x	x	x	x			
	700													x	x			
	J 7.5															x	x	
	2" Rope														x	x	x	x
	1000																x	

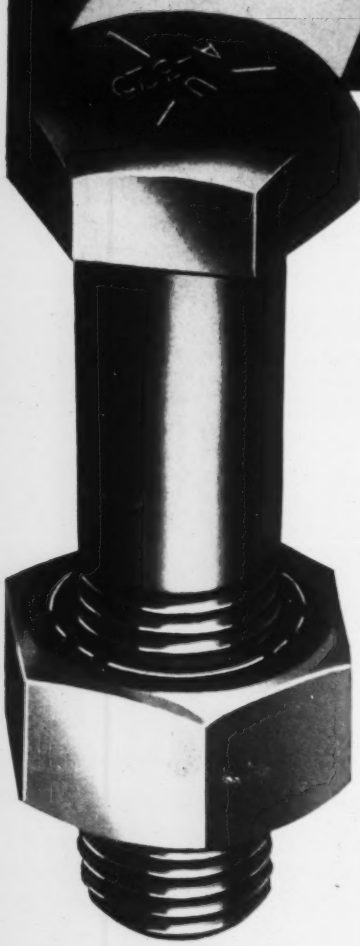
Write or phone today for further details to either of the addresses below:

610 Industrial Avenue
Paramus, New Jersey
COlfax 1-6800

Atlas Copco

930 Brittan Avenue
San Carlos, California
LYtell 1-0375





REPUBLIC HIGH STRENGTH BOLTS

keep these four High-Cost, High-Risk fastening problems *OUT* of the picture

No Hot Rivets

Because this structure is being assembled with Republic High Strength Bolts, there are no hot rivets to endanger personnel or property. No fire hazard—no special precautions necessary. Work proceeds more safely, and more quickly as well.

No Elaborate Scaffolding

This expense is ended because large crews and heavy equipment are not required. Republic High Strength Bolts can usually be applied from structural members. Saves both time and money.

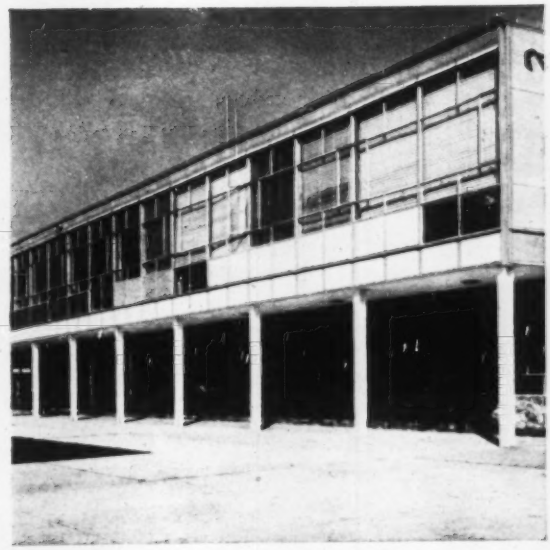
No Costly Crews

Only two men, one with a torque wrench, the other with a standard hand wrench, can apply Republic High Strength Bolts. Regular steel erectors can learn the work quickly. No need for expensive, highly-skilled, and hard-to-find riveting crews.

No Excessive Noise

The extreme racket of riveting guns is obsolete with Republic High Strength Bolts. Pneumatic impact wrenches reduce noise by 50%—a vital consideration around schools, congested areas, and hospitals.

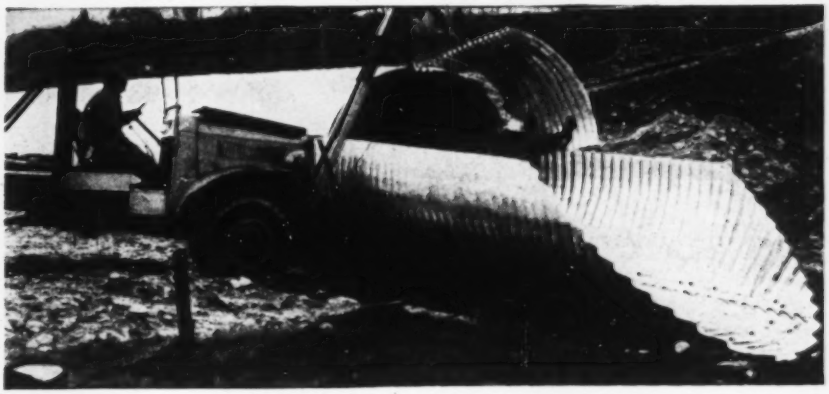
FOR ALL THESE ADVANTAGES PLUS STRONG, SAFE CONNECTIONS
CALL YOUR REPUBLIC REPRESENTATIVE OR MAIL COUPON



EXCELLENT LIGHT, VENTILATION with beauty and economy, are features of Truscon VISION-VENT® Window Walls—shown here in North Hagerstown, Maryland's new high school*. Select practically any type of window . . . choice of high-gloss panel colors for single- or multi-colored effects . . . steel or aluminum. Send coupon for full information.

(*Architects: McLeod & Ferrara, Washington, D.C.)

SAVINGS IN FLOOR SPACE, with support for heavy loads, were obtained by using Republic High Strength Concrete Reinforcing Bars in Washington National Insurance Company Building, Evanston, Illinois. Columns using 11 No. 18S butt-welded high strength bars, with a possible design stress of 30,000 psi, measure only 26" in diameter. Republic High Strength Reinforcing Bars provide a minimum yield point of 75,000 pounds per square inch and meet new ASTM Specification A-431-58T. Mail coupon.



FAST, EASY ASSEMBLY of Republic Sectional Plate Pipe saves time, money. It is engineered and fabricated at the factory—is easily assembled on the job with a minimum of labor and equipment. That's why full round pipe of 12-gage plates, 84" in diameter, was used to construct this 90-foot cattle pass near Boise, Idaho. For details, send coupon.

REPUBLIC STEEL

World's Widest Range of Standard Steels and Steel Products

REPUBLIC STEEL CORPORATION
DEPT. EN-8246
1441 REPUBLIC BUILDING • CLEVELAND 1, OHIO

Please send more information on:

- ☐ High Strength Structural Bolts
- ☐ VISION-VENT Window Walls
- ☐ Sectional Plate Pipe
- ☐ High Strength Reinforcing Bars

Name_____ Title_____

Company_____

Address_____

City_____ Zone____ State_____

"Nothing speeds job cycles like *TORQMATIC DRIVE*"

You find it out on the very first job: no equipment you'd put extra money into pays it back as fast as equipment with TORQMATIC DRIVE.

First place, you need fewer units. For a TORQMATIC rig works rings around anything with a stick-shift. In trucks, for example, it means bigger units that make more trips per day. Dozers and scrapers make faster passes. Shovels take full bites every time.

What's more, TORQMATIC equipment *keeps* working. A fluid drive absorbs shocks that mean frequent repairs to ordinary equipment. That also protects engines from strain – drive-lines from shock-load damage. The pay-off: TORQMATIC *users slash operating costs!*

What's all this mean to you? Simply that money-wise contractors look beyond the somewhat higher price tag on a TORQMATIC unit. They know you *can't* lose on equipment that handles bigger jobs—with fewer units—at lower cost—than anything else around.

And remember—you can collect all the TORQMATIC savings in nearly every type—and over 100 makes—of construction equipment. Just ask your equipment dealer—or write:

Allison Division of General Motors, Indianapolis 6, Indiana
In Canada: GENERAL MOTORS DIESEL LIMITED, London, Ontario

Allison TORQMATIC

TORQMATIC® DRIVES

THE MODERN DRIVE FOR MODERN EQUIPMENT

Materials Prices

Monthly Market Quotations by ENR Field Reporters

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED Per M. lots of 2,000 pieces or over, 3x12x12 In.	4x12x12 In.	8x12x12 In.	STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over, 8x12x12 In.	10x12x12 In.	12x12x12 In.	BRICK Per M. in quantity Common backing	Straight hard	LIME Per ton, in paper, Carload lot. Hydrated finishing	Common hydrated	Pulverized
Atlanta	$170 10pr	$153 25pkkr	$306 55pr	$344 85pr			$31 50uu	$33 75uu	$36 50kk	$28 50kk	$28 50kk
Baltimore	217 00	231 00	434 00	491 00	602 00	690 00	36 00	41 00	35 60	23 20	
Birmingham	135 00pss	152 00pss		30 00p	376 00p	465 00p	27 00ff	38 00rr	38 25mm	20 87mm	26 33mm
Boston	232 00tmm	248 00tmm	463 25tmm	356 00tmm			41 50p	56 50p	40 20ll	32 20ll	
Chicago	137 00il	149 00il	280 00il				32 00	34 00	38 00il	35 20oll	
Cincinnati	160 00mmyy	172 00mmyy	327 00ddmm	390 00mmyy	425 00mmyy	500 00mmyy	48 00jk	47 00jk	29 10mm	25 10mm	29 10mm
Cleveland	200 00tt	213 00tt		453 00tt		693 00tt	41 75tt	45 75qqtt	32 75ptt	28 00ptt	
Dallas	155 00	155 00	306 00	370 50	452 25	560 00	27 50	49 00	41 80	24 50	28 80
Denver mm	170 00	185 00	310 00	310 00	390 00	442 00	48 00	48 00p	42 00p	42 00p	46 00m
Detroit	242 00mm	258 00mm	483 00mm	548 00mm	723 00mm	827 00mm	51 50pmm	52 00pmm	38 00mm	30 00mm	40 00mm
Kansas City mm	158 00	158 00	312 00	312 00	400 00	500 00	34 00	34 00	36 26	34 26	29 76
Los Angeles	r	r	r	r	r	r	38 00uu		38 00mmll	38 00mmll	39 00mmll
Minneapolis	192 00pr	215 00pr	437 00pr	215 00pwr			45 00rpr	54 00ypr	49 00bbr	38 00bbr	52 00bbdr
Montreal	168 75uupoo	180 93uupoo	325 00uupoo	220 00qoo	400 00qoo		48 25hh	56 30hh	39 00	22 00	13 25
New Orleans	198 00	198 00	370 00	370 00			42 00	55 00	44 00	32 00	32 00
New York	177 00A	189 00A	283 00cA	285 00An			44 00p		50 00p	40 00p	
Philadelphia R*	202 10ss	215 60ss	323 10ss	485 10ss			40 00mm	50 00mm	27 60mm	21 50	21 50
Pittsburgh pp	200 00tt	213 00tt	400 00tt	453 00tt	607 00tt	693 00tt	39 00tt	46 00tt	38 00tt	33 00tt	34 00tt
St. Louis	172 00mmpp	180 00pp	375 00pp	401 00ppp	459 00pp	621 50pp	44 00mmpp	45 50pp	1 00uupp	98uupp	1 35uupp
San Francisco	156 85*mm	177 10*mm	235 30dd*mm	159 40qqmm			43 00*mm	43 00*mm	29 24mm	29 24mm	31 74mm
Seattle	235 00pt	270 00pt	490 00pt	265 00pqr			48 00tt	62 00tt	52 00bbtt	38 00bbtt	4 50mbbtt
Toronto	158 00rr	173 00rr	336 00rr	263 00rrr	378 00rrr		35 00rr	63 00rr	38 00mm	34 50mm	33 50mm

*$ F.o.b. yard. **r F.o.b. plant Stockton. *t F.o.b. yard Roxbury. *u Smooth. *v Chi common. *z Pebble; 80 lb sack. *aa 50 lb sack. *bb LCL. *dd 8 x 12 x 12. *h $4.50 del. *c 8 x 12 x 12 in.-8 cell. *d Pulverized hot. *e less 5% disc., 10th., 8 x 8 x 12. *g Lumps, $26.72. *h F.o.b. trucks, job site N.Y.C. *i 60 lb sacks. *j Truck load or over. *k $1.00 discount per M, 10 days. *l Red face. *m Per bb 180 lb. processed. *n 7¾ x 7¾ x 12. *o Mason's double hydrated pressure. *p Truck lots. *q Provincial and Municipal tax extra (6%). *r Not used; earthquake danger. *s 8 x 16 x 12. *t less 2% disc., cash. *u Incl. Federal tax. *v Sand lime. *w 5 x 8 x 12. *ff 80% common. *gg Smooth. *hh less 25c disc., cash. *ii F.o.b. plant. *jj rough; smooth; $40. *kk 3" x 11" x 11½". *ll less 2% disc. 10th. *mm less 2%, 10 days. *nn F.o.b., L. A. *oo less 2%, 30 days. *pp add 2% sales tax. *qq 8 x 8½ x 11½. *rr 2% disc., 10 days. *ss 5% disc., 10 days. *tt less 2% disc., 15th. *uu less 50c M, 10 days. *vv 4000 pcs. and over. *R revised. # eff. 3/1/59.

* Philadelphia prices revised, watch for analysis

PAINT, ROOFING—F. O. B. CARLOAD LOTS

	RED LEAD Per 100 lb. In 500 lb. (Approx.) bbl. F.O.B. Plant Dry a C	WHITE LEAD Per 100 lb. In 100 lb. cases In oil	READY-MIXED PAINT Per gal., drums Graphite b	Aluminum c	Ferric Oxide d	ROOFING SUPPLIES; Carload lots f.o.b. factory Rolls, slate surfaced, 85-90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb	Asphalt coating per gal.	Tar pitch 380 lb. bbl. per ton
Atlanta	$13 75ggJO	$24 00ggJ	$3 59	$3 86	$3 31	$2 90kk	$2 12kk	$2 49kk	$0 67kk	$63 50kk
Baltimore	17 50pp	24 00	3 00	4 40	3 50	2 78	4 25	4 25	48	56 75
Birmingham	26 00tJ	29 00tJ	3 90J	3 40J		3 30ttmm	2 45ttmm	2 45ttmm	82ffmm	45 00eemm
Boston	24 95toomm	26 90tmmm				3 01tg	2 64g	2 83g	56g	58 00g
Chicago	15 25rJqqpp	24 00tJ				3 85kkk	2 76kkk	3 00kkk	48 00bbkkk	57 70ffkk
Cincinnati	15 25tJO	24 00tJ				2 87mm	2 02mmm	2 42mmm	428ymm	53 98ffmm
Cleveland	25 65t	26 90t	2 46qq	2 70qq	3 08qq	2 93q	2 05n	2 42n	484y	49 00qq
Dallas	22 50	23 50M		3 25R		3 00q	3 00n	3 00n	470	66 00AA
Denver	23 00m	24 00	3 98	5 20	3 70	2 86	2 12n	2 80n	50ff	50 00
Detroit	15 25r	24 00rr	2 70mm	3 95mm	2 70mm	2 82mm	2 05mmll	2 42mmll	56ffmm	49 00mm
Kansas City	26 90fqqoo	25 65	3 99	3 43	3 01	4 01mm	2 72mmm	2 80y		
Los Angeles	24 00O	24 00	3 30m	4 50m	4 20m	3 40kkk	2 40mkkk	l	.75mykkk	l
Minneapolis	16 23N	21 50kk				3 28kk	2 59hkk	2 42hkk	438kkk	50 00rkk
Montreal	19 45O	26 00ttt	5 52Dfft	6 55affft	5 10kfft	5 40	4 65f	4 65f	1 60	4 40uu
New Orleans	23 00Jpp	24 00J				2 78	1 98	2 85	680	45 50
New York	25 65oo	26 90				3 29	2 16o	2 45o	438a	49 00*
Philadelphia R*	15 25Omm	24 75mm	3 35mm	3 90mm	2 65Rmm	4 70	3 60	2 85	515	50 00
Pittsburgh	21 00mggJ	24 00J	2 20tEJ	2 25tFJ	2 25tGJ	3 57tH	2 75tH	2 95H	48H	55 00H
St. Louis K	25 65tm	26 90				3 20mmmm	2 31kkK	2 96kkK	428yK	62 00K
San Francisco	26 70mm	26 90mm	3 20mm	4 30mm	3 50mm	2 95mm	1 97aammm	3 10mm	40ff	54 00
Seattle	13 35HO	24 00H		4 19ccffJ		3 61ppeH	3 16eeH		55ee	
Toronto	14 45	19 35	5 15J	6 18J	5 95J	2 70	2 40aae	2 40o	1 01f	49 00A

*† Delivered. * Note: Red lead in oil 50% higher than white lead in oil. ** Aver. wt. approx. 425 to 550 lb drums. *a Red lead prices change frequently due to pig lead price changes. *b U.S. War Dept. Spec. 3-49A. *c ASTM Spec. D266-31. *d 80% minimum ferric oxide. *e Per 108 sf roll. *f Per 432 sq ft. *g F.o.b. yard Roxbury. *h Per roll, 65 lb. *i Net carload prices, Minneapolis and vicinity. *j 45 gal containers. *k Over 80% ferric oxide. *l Not used. *m 100 lb. keg. *n F.o.b. city. *o Per 60 lb roll. *p 6-drum, 50 gal each. *q Per 90-lb r ll. *r F.o.b. factory, Chicago. *s Truckload. *t Incl. Federal tax. *u Per 90-lb square. *v Per ton. *x Ready-mixed. *y 55-gal container. *z Drums. *aa 15 lb. *bb Roofers coating and cement. *cc LCL, truck delivery. *dd Asphalt pitch in 100 lb package. *ff 5-gal drums. *gg F.o.b. factory. *hh Incl. freight. *ii Per 324 sf roll. *jj Asbestos roof coating. *kk less 2% disc., 10th. *mm less 2% disc., 10 days. *oo 100 lb bbls. *pp 50 or 100 lb bags. *qq 500 lbs or more. *rr F.o.b. plant, Detroit. *ss 50 lb bbls. *tt 25 lb kegs. *uu 250 lb bbls. *v 400 lb barrels. *R ASTM Spec. D962-49. *C 95%. *D Std. black. *e Milt. spec.: E TTP27; F TTY81; G TTP31. *ll less 2% disc., cash. *m Per 100 lb. *n less 1% disc., 10 days. *N add 2% sales tax. *L LCL. *M 1 ton or more. *N under 500 lbs, add $1 *O 50 lb. bag. *R revised

* Philadelphia prices revised, watch for analysis

PLASTER, VERMICULITE AND METAL BUILDING SHEETS & TUBING

	PLASTER‡ Neat per ton	Gauging per ton	VERMICULITE‡ Home Insulation pellets	Plaster aggregate	Concrete Aggregate Untreated	PERLITE‡ Plaster Aggregate	Concrete Aggregate Untreated	ALUMINUM SHEET† Flat .102" th 36"x108" & 48"x144" per lb‡	Corr roof .032" th 35"x12' per shu	STAINLESS STEEL† SHEET-TYPE 302g 20 ga 48"x96" 120' per cwthh	28 ga 36"x120' per cwtmm	COPPER WATER* TUBING-TYPE L 2000 ft lots per ft ¾"h	½"c
					per bag of 4 cu ft								
Atlanta	$32 00aa	$42 00aa	$1 55aaa	$1 65aaa	$1 80aaa	$1 65aa	$1 65aa	$0 440uoo	$8 83n	$65 68nzz	$74 43nzz	$0 1668aa	$0 2317aa
Baltimore	23 80	34 60	0 95	1 15	1 15	1 15	1 55	0 462	0 451r	63 00	71 25	0 16	0 2288
Birmingham	37 00aa	43 00aa	1 55aa	1 55aa	1 60aa	1 27aa	1 27aa	0 455dM	9 62K	67 34K	76 09K	0 16aa	0 23aa
Boston	22 00	30 00	1 40	1 40	1 40	1 45aa	1 50aa	0 462	29 35p	64 42ddzz	71 92dd	0 1668aa	0 2317aa
Chicago	26 80tt	28 80tt	1 55	1 60	1 60l	1 60	1 60	0 506z	10 294a	64 15ee	72 40ee	0 1762	0 2464
Cincinnati	23 85*aa	23 85*	1 75*aa	1 75*aa	1 75*aa	1 85aa	1 90aa	0 434	9 59	65 30zz	74 05zz	0 1668aa	0 2317aa
Cleveland	28 00N	45 00N	1 13aa	1 16aa	1 24laa	1 45aa	1 45aa	0 458aa	8 48	64 33oozz	72 58oozz	0 1643tt	0 2288tt
Dallas	30 65	32 65	1 07	1 23	1 37	1 21	1 32	0 484	0 517e	65 00	78 00	0 1668	0 1886
Denver	27 00	27 00	1 50	1 40	1 50	1 50aa	1 60aa	0 452	10 80	65 00qq	73 57qq	0 1668	0 2317
Detroit	28 00aa	28 00aa	1 27aa	1 31aa	1 40aa	1 45ktt	1 50ktt	0 452a	10 16r	65 15azz*	73 90azz*	0 1668	0 2317
Kansas City	30 00	35 00	1 19E	1 21E	1 29lE	1 21		0 444	23 20pppp	67 50E	76 25E	0 1672	0 2464
Los Angeles	27 00tt	28 00tt	1 25ktt	1 20ktt	1 25tt	1 06	1 10	0 486	10 512	65 02	73 27	0 1688	0 2288
Minneapolis	35 00F	35 00F	1 65tt	1 80F	1 95F	1 40S	1 40S	0 468	16 23	61 61GR	69 61ffG	0 1762	0 2067
Montreal	27 80A	35 60A	1 25k	1 40k	1 50k	1 15r	1 15r	43 95A††	12 1oH	64 75H		0 1840	0 2187
New Orleans	34 00	48 00	1 25P	1 35P	1 25P	1 25P	1 25P	0 526	24 90	71 50	72 45	0 1792	0 2464
New York	26 00	35 00	1 35	1 30	1 50	1 40	1 40	0 462cd	9 29a	65 00aB	73 75aB	0 1633	0 2288
Philadelphia	26 50	31 00aa	1 30aa	1 30aa	1 40aa	1 25aa	1 25aa	0 44	9 46	63 00	71 25	16 18	22 24
Pittsburgh *	30 00nn	33 00nn	1 50nn	1 50nn	1 50nn	1 50nn	1 50nn	0 452	9 46	64 00	76 25pp	0 1555	0 1858
St. Louis ww	30 00uu	41 00uu	1 80uu	1 60uu	1 55uu	1 60uu	1 65uu	0 452	10 28	65 30Knnn	71 80uuu	0 1618mm	0 1944mmm
San Francisco	29 50aa	30 50aa	1 35aa	1 35aa	1 50aa	1 35aaa	1 50aaa	0 502	9 76	66 50K	74 25K	0 1762	0 2464
Seattle	42 40nn	45 60nn	1 55nn	1 25knn	1 50tt			0 513Ee	9 90D	65 02D	72 27D	0 1668	0 1752
Toronto	30 40	50 00	1 45	1 45	1 65	45 00QQ		0 3995	24 75ap	73 74	88 52	0 2917	0 3265

‡trucklots, delivered †fob warehouse *fob city *a delivered *b ½" O.D. *c ⅝" O.D. *d 0.100"th *e 34" x 60" sheet *f per 100 ft *g 5 tons & up; cold roll, anneal & pickled 2B finish *h incl. Federal tax *i add 25c for pint of additive *j 1100 & 3003 alloy, mill finish *k bag of 3 cu ft *l treated with air entraining agent *m 2-10M lt *n fob mill fr equalized with nearest stocking competitor *o 250 sacks or more *p 100 sq ft *r per lb *s 30 lb bag *t 36" x 108"; 10.81 lb sh; 48" x 144"; 21.7 lb sh *u 19.31 lb sh *v fob plant *w 48" x 144" *x 0.11"th *y 27 gauge *aa 16M lb & up *dd add $1.00 cwt boxing *ee 4 tons & up *gg add $2 cwt boxing; 59.7¢ cwt on skids *hh Theoretical wt for 48" x 96"; 60.4-lb. per sh *ii 300-bag lots *jj 100-lb bag *mm Theoretical wt: 19.7-lb per sh *nn 2% cash *oo skid packed *pp type 304 *qq Philadelphia and suburbs *rr less 2% disc. 15 days. *ss less 2% disc. 10 days. *tt less 2% disc. 10th. *uu add 2% sales tax. *vv Type N. *ww Per 100 sf. *xx less ½% disc. 10 days. *yy .021 ga. *zz .051" th. *A Per 100 lb. *B crated. *C 15M lb. *D less ½% for cash. *E Quantity differential. *F less 5% disc. 10th. *G less ½% disc. 10th. *H Fed. tax exempt. *K less ½%, 10 days. *L 5% disc. 30 days. *M 3003; .452 for 1100. *N less 2% 15th mo. *O less $2 cash & carry. *P less 2%, 15 days. *Q per ton. *S add .10 bag under 200 bags. * Philadelphia prices revised, watch for analysis

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, MARIE MORAVSIK, ELAINE CHOMYAK, ELIZABETH WERRA, ELEANOR QUERET, Reports, J. H. WEBBER, E. R. HUBER, Statistics.

NEW ENGLAND

BUILDINGS—BA

▲ **Conn., New London**—OFFICE, etc.—BA 9/3—Southern New England Telephone Co., 227 Church St., New Haven, 5 story, 50,000 sq. ft., concrete, brick, block office and operations bldg., dial sys., Washington St., $2,100,000. Douglas Orr, 111 Whitney Ave., New Haven, archt. CD 10/14.

▲ **N. H., Marchester**—SCHOOL—BA 9/3—City, 88 Lowell St., high school, S. Porter St. and Webster Rd. $2,500,000. Plans deposit $150. Dirsa & Lampron, 922 Elm St., assoc. archts. Koehler & Isaak, 1880 Elm St., archts. J. U. Wiesendanger, East Winthrop, Me., engr. CD 10/6.

HEAVY CONSTRUCTION—LB & CA

▲ **VERMONT**—State Dpt. Hys., State House, Montpelier, Bids opened 8/14,

Perini Corp., 73 Montwaite Ave., Framingham, Mass. LB **$4,924,764**, est. $5,000,000, grade, subbase, b. conc., surf. course, two 4 span composite WF beam bridges, Rte. 91, Proj. 1-91-1 (9) Brattleboro, Summerstown and Putney. CD 7/24.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

▲† **Pennsylvania and New Jersey**—BA About 9/16—U. S. Eng., 2635 Abbottsford Rd., Phila., Pa., dredging approx. 5,319,000 cu. yd. Delaware River between Phila., Phila. Co., Pa. and Trenton, Mercer Co., N. J. $5,000,000. CD 9/19

BUILDINGS—BA

▲ **N. Y., New York**—APARTMENT—Bids Asked—Lenox Hill Neighborhood Assn., 331 E. 70th St., 296-family middle income cooperative apartment, Yorkville Section, east side York Ave. between East 81st and East 82nd Sts. $4,400,000. Brown & Gunther, 1860 Broadway, New York, N. Y., archts.

HEAVY CONSTRUCTION—LB & CA

▲ **Zara Contr. Co., Inc.**, Engel St., Hicksville, N. Y., CA $4,228,470, Contr. No. 10002-2-ELM-4A, lateral sewers, Lakeview and West Hempstead, Sewage Collection Dist. No. 2-ELM, MINEOLA, N. Y. Dpt. P. Wks., Nassau Co., Old County Courthouse, Mineola, N. Y. Bids July 28. CD 7/30, under LB.

BUILDINGS—LB & CA

▲ **John W. Ryan Constr. Corp.**, 11 W. 42 St., New York, N. Y., CA $3,000,000, 5 DORMITORIES AND SOCIAL FACILITIES, PRINCETON, N. J. Princeton University, Princeton, N. J. Bids July 28. CD 7/21.

▲ **Wark & Co.**, 1920 Sansom St., Phila., Pa., CA $2,000,000, RESEARCH and ENGINEERING CENTER, EXTON, PA. Foote Mineral Co., 18 W. Chelten Ave., Exton, Pa. Bids July 22. CD 7/17.

▲ **Lindy Bros. Builders, Inc.**, 5443 Greene St., Phila., Pa., Separate Contracts, $7,200,000, RESIDENTIAL DEVELOPMENT (600) Knights Rd., etc., PHILA., PA. Theodore Brandow, Erdenheim, Pa., and S. Sherwin Rochlis, 1525 Walnut St., Phila., Pa., archts.

SOUTH

HEAVY CONSTRUCTION—LB & CA

▲† **Kaiser Steel Corp.**, 612 S. Flower St., Los Angeles, Calif., CA $3,898,999, 305 ft. self-propelled tower for Saturn Missile, with shops, controls, elevators and testing equipment, Cape Canaveral, Patrick Air Force Base, COCOA, FLA. U. S. Eng., 575 Riverside Ave., Jacksonville, Fla. Maurice H. Connell & Assocs., P.O. Box 3526, Riverside Station, Miami, Fla., archts.-engrs. (Correction—cost) CD 8/6, under CA.

▲† **English Electric**, Netherton, England, LB $1,590,665, Item 1, **Baldwin-Lima-Hamilton**, Chester Pike and Simpson St., Eddystone, Pa., LB $1,564,000 Item 1 (with liquidated damages provision) $1,438,000 (without liquidated damages provision) two 48,300 hp turbines and 32,400 kw generators for installation in Wheeler Dam for operation in summer of 1962, ALABAMA Tennessee Valley Auth., New Sprankles Bldg., Knoxville, Tenn. Bids July 30. CD 7/20.
English Electric, Netherton, England, LB $2,354,305, Item 2, **Baldwin-Lima-Hamilton**, Chester Pike and Simpson St., Eddystone, Pa., LB $2,313,000, Item 2 (with liquidated damages provision) and $2,140,000 (without) three turbines (Alabama).
American Elin Corp., Weiz, Austria, LB $1,436,000, Item 3, **General Electric Co.**, 1 River Rd., Schenectady, N. Y., LB $1,760,300, Item 3, two 32,400 kw. generators (Alabama).
American Elin Corp., Weiz, Austria, LB $2,133,000 Item 4, **General Electric Co.**, 1 River Rd., Schenectady, N. Y., LB $2,627,400, Item 4, three generators (Alabama).
English Electric, Netherton, England, LB $3,415,334, Item 5, two turbines and two generators (Alabama).
English Electric, Netherton, England, LB $5,025,315, Item 6, three turbines and three generators (Alabama).

BUILDINGS—LB & CA

▲† **General Electric Co.**, 1 River Rd., Schenectady, N. Y., CA $18,007,280, 600 KW Tandem-compound steam turbogenerator for new plant Western Tennessee, TENNESSEE. Tennessee Valley Auth., New Sprankles Bldg., Knoxville, Tenn. Bids June 16. CD 6/18, under LB;
Brown, Boveri Corp., Baden, Switzerland, CA $8,500,000; Sched. I, Item 2, one 500 KW cross compound steel turbogenerator and 2 boiler feed pump turbines for operation Aug. 1, 1963 for existing plant (Tennessee).

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ **Ind., Fort Wayne**—BA 9/15—Bd. P. Wks., 1 story, bsmnt., steel, reim.-con. sewage treatment plant addn., incl. primary, aeration and final tanks, digesters. $3,700,000. Plans deposit $90. Consoer-Townsend & Assoc., 360 E. Grand Ave., Chicago, Ill., engrs. CD 8/29/57.

BUILDINGS—BA

▲ **Ind., Goshen**—SCHOOL—BA 9/21—Goshen School Bldg. Corp., 1 story, bsmnt., brick and block high school addn., incl. 2 swimming pools and gymnasium, $2,000,000. Bevington-Taggert & Fowler, K of P Bldg., Indianapolis, engrs. Maurer & Maurer, Lafayette Bldg., South Bend, archts.

HEAVY CONSTRUCTION—LB & CA

▲ **Builders Lighting Corp.**, 4653-59 W. Arthington St., Chicago, Ill., CA $2,361,115, Section 83-cs, street lighting, CICERO, ILL. City of Cicero, City Hall Cicero, Ill. Bids July 6, awarded Aug. 1. CD 7/30, under LB.

BUILDINGS—LB & CA

▲ **Joseph T. Carp**, 5640 N. Northwest Hy., Chicago, Ill., CA Est. $3,000,000, MFG. and WAREHOUSE FACILITY, OFFICE, CAFETERIA and parking area, WILMINGTON, ILL. Personal Products Corp., sub. Johnson & Johnson, 6401 W. 65th St., Chicago, Ill. CD 7/30.

▲ **Salem-Brosius, Inc.**, 12 Arch St., Carnegie, Pa., CA Total cost $35,000,000, roll-down type tube REHEATING FURNACE and battery of soaking pits at River Rouge Plant, DEARBORN, MICH. Ford Motor Co., The American Rd., Dearborn, Mich. CD 3/10.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger; water supply, earthwork, waterways $53,000, other public works $88,000, industrial buildings $110,000; other buildings $400,000. Also Foreign projects of $1,000,000 and more in size of Interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED
New England — Middle West
Middle Atlantic — Mississippi to Rockies
South — Far West

PROPOSED WORK
Water Supply — Public Buildings
Sewers, Waste Disposal — Mass Housing
Bridges — Commercial Buildings
Streets & Roads — Industrial Buildings
Earthwork, Waterways — Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding Issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over
ENR Engineering News-Record
CD Construction Daily

For additional reports see Construction Daily.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

▲† **Texas**—BA 9/10—U. S. Eng., foot of Prytania St., New Orleans, La., Part I channels, levees, downstream from Cooper Reservoir, Sulphur River, ENG-16-047-60-288. Over $2,000,000. CD 9/23.

BUILDINGS—BA

▲† **Tex., Houston**—FEDERAL COURTHOUSE and OFFICE—BA 9/10—General Services Admin., 1114 Commerce St., Dallas, 12 story, 521,071 sq. ft. Federal Courthouse and Office, Rusk, Brazos, Capitol and Smith Sts. $12,000,000-$17,000,000. Extended date. Staub, Rather & Howze, 2814 Virginia St., Jno. F. Staub, 2814 Virginia St., Harvin C. Moore, 2006 W. Alabama St., Rustay & Martin, 1811 Crawford St., archts. H. E. Bovay, Jr., 5009 Caroline St., Walter P. Moore, 2 Pinedale St., engrs. CD 8/13.

HEAVY CONSTRUCTION—LB & CA

▲† **Guy F. Atkinson Co.** & Ostrander Constr. Co., 10 West Orange Ave., South San Francisco, Calif., CA $19,367,462, powerhouse superstructures and surge tank bases, Oahe Reservoir Proj. near Pierre, ENG-25-066-59-127, SOUTH DAKOTA. U. S. Eng., 1709 Jackson St., Omaha 2, Neb. Bids July 30, awarded Aug. 14. CD 8/3, under LB.

FAR WEST

HEAVY CONSTRUCTION—LB & CA

▲ **N. S. Shumway Constr. Co., Inc.**, 1702 W. Fillmore St., Phoenix, Ariz., CA $2,698,274, South Feeder Water Main from Thomas and 64th St. to 9th St. and Polk area, PHOENIX, ARIZ. City, City Hall, Phoenix, Ariz. Bids Aug. 4, awarded Aug. 12. CD 8/10, under LB.

▲† **Montgomery Ross Fisher Co., Inc. & L. M. Halper & Co.**, 10835 Santa Monica Blvd., Los Angeles, Calif., CA $2,456,472, ROMARC IM-99B facility, Vandenberg Air Force Base, ENG-04-353-59-104, LOMPOC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids July 28. CD 8/3, under LB.

▲ **Foster-Marsch Corp.**, 3911 Pacific Hy., San Diego, Calif., CA $6,212,044, Second San Diego Aqueduct, prestressed pipe alt., from La Mesa and Lower Otay Reservoir, SAN DIEGO, CALIF. San Diego County Water Auth., 2750 4th Ave., San Diego, Calif. Bids May 8. (Correction—contractors name). CD 6/30, under CA.

CANADA

HEAVY CONSTRUCTION—LB & CA

▲ **Tallman Constr. Co. Ltd. & Terminal Constr. Div. of Henry J. Kaiser Co. Canada Ltd.**, c/o 600 Panet St., Winnipeg, Man., CA $1,932,560, lengthening two runways and taxiways, International Airport, WINNIPEG, MAN. Awarded Aug. 3. CD 5/3/57.

BUILDINGS—LB & CA

▲ **Perini Quebec, Inc.**, 550 Sherbrooke St. W., Montreal, Que., CA 42 story, structural steel, glass walled OFFICE, Windsor Plaza, MONTREAL, QUE. Dorchester Commerce Realty Ltd., c/o Maxwell Cummings & Sons, 1390 Sherbrooke St. W., Montreal, Que. Bids June 2, awarded Aug. 12. CD 5/21.

LATIN AMERICA

HEAVY CONSTRUCTION—BA

▲ **Peru**—RUNWAY—BA 9/21—Commercial Aviation & Airports Corp., Govt. of Peru, Lima, runway for jet planes at new airport. $3,065,509. CD 4/2.

AMERICANS ABROAD

HEAVY CONSTRUCTION—BA

▲ **Thailand**—Bids in October—Royal Irrigation Dpt. of Kingdom of Thailand, Bangkok, furnishing, del following goods, equipment and materials either f.o.b. contractors shipping point of cif. Bangkok Wharf, Thailand for the Bhumiphol Dam and Power Plant, Yanhee Multipurpose Proj., furnishing nine 3.54 meter by 4.62 meter draft tube bulkhead gates and 24 sets draft tube gate frames and guides, the gate frames are to be fabricated of stainless clad plates, Inv. YS-2-10, furnishing two 2.136 meter (84 in.) free discharge valves, complete with operating mechanism and appurtenant accessories to operate under maximum static head of 120 meters (393 ft.), the valves shall be of the hollow-cone or hollow-jet type, Inv. YS-2-11. Thai Liaison Engineer, c/o Engineering Consultants, Inc., 1940 West Mississippi Ave., Denver 23, Colo., U.S.A., engrs.; adv. ENR 8/27. CD 1/23/58.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Fla., Miami**—Arvida Corp., 324 John Ringling Blvd., WW, sewers, Southdale Subdivision, Southwest Section, $2,300,000. Gibbs & Hill, Inc., Penn Station, New York, N. Y., consult. engr.

▲ **Mass., Brockton**—City, City Hall, 30 in. conduit between Furnace Point and Silver Lake, 21 mi., 24 in.

mains, pump at Silver Lake. $1,921,000. To go ahead in 1960.

▲ **N. C., Raleigh**—City, City Hall, voted $1,742,000 bonds Aug. 11 water supply system imprvs., and enlarging. CD 7/17.

▲ **Tex., Dallas**—City, City Hall, Lake June Reservoir. $1,000,000. CD 9/4/56.

▲ **Tex., Dallas**—City, City Hall, Fornez Reservoir East Fork of Trinity River for domestic supply. $27,400,000. Forrest & Cotton, Praetorian Bldg., consult. engrs. CD 2/17.

▲ **Tex., Garland**—City, City Hall, voted bonds Aug. 4, WW sys. imprvs. $1,175,000. CD 7/20.

▲ **Tex., Mineral Wells**—City, water facilities (P-Tex-3070). $1,400,000. Joe J. Rady, 511 Insurance Bldg., Fort Worth, consult. engr.

SEWERS, WASTE DISPOSAL

▲ **Calif., Carlsbad**—City, 2960 Pio Pico Dr., defeated bonds July 28, sewer imprvs, $1,200,000; storm drain imprvs., $155,000. CD 6/3.

▲ **Calif., Santa Monica**—City, City Hall, $1,500,000 bond election Sept. 15, sanitary sewer imprvs.

▲ **Ill., Aurora**—Aurora Sanitary Dist., P.O. Box 241, sewage disposal plant, auxiliaries, appurtenances, etc. $1,950,000.

▲ **Minn., St. Paul**—City, City Hall, storm water relief sewer St. Peter St.-Rondo Ave. $1,500,000. CD 11/9/53.

▲ **S. C., Greenwood**—City, City Hall, secondary sewage treatment plant, trunk sewers and pumping station. $2,000,000. Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs. (correction owner). CD 5/13.

▲ **Tex., Houston**—City, City Hall, bond election Sept. 12, storm sewers $10,000,000, sanitary sewers $7,000,000. CD 1/29/58.

▲ **Tex., Garland**—City, City Hall, voted bonds Aug. 4, sanitary sewer imprvs. incl. lines, collection sys. and disposal plant. $2,500,000. CD 7/20.

BRIDGES

▲ **NEBRASKA**—IOWA—State Dpt. Rds. & Irrigation, Lincoln, Neb. and State Hy. Dpt., Ames, Iowa. Douglas Co., Neb.—Interstate Hy. Bridge over Missouri River between Omaha and Council Bluffs. $11,000,000. Leo A. Daly, 633 Ins. Bldg., Omaha, Neb., archt., and Howard-Needles-Tammen & Bergendoff, 1805 Grand St., Kansas City, Mo., consult. engrs. CD 9/12/56.

▲ **O., Jefferson**—Comrs. Ashtabula Co., Court House, 2-mill bridge levy to be voted Nov. 3, bridges $1,500,000. Will run three years and raise $500,000 per year. CD 7/30.

▲ **Tex., Houston**—City, City Hall, bond election Sept. 12, grade separations $4,000,000; bridges $3,000,000. CD 1/29/58.

STREETS AND ROADS

▲ **HAWAII**—Dpt. Public Rds., 721 Kelika, Honolulu, Honolulu—0.5 mi. 6 lanes Lunalilio Freeway, Middle St. to Pinkahin St., Proj. F-072-1 (2), $1,475,000. 0.7 mi. 4 lanes, Middle St., Unit 3, Proj. F-065-1 (1), $1,168,700.
0.2 mi. 2 lanes, Lunalilo Freeway, Keaumoku St. separation, Proj. U-072-1 (8), $721,340.
0.2 mi. 4 lanes, Moanalua Rd., Unit 3, Proj. US-S-0720 (3), $750,000.

▲ **HAWAII**—Dpt. Public Rds., 721 Kelika, Honolulu, Honolulu—1.0 mi. 4 lanes Pali Hy.-Coelho Lane to Kaykine St. Proj. BU 061-1 (7), $4,860,000.

▲ **Tex., Garland**—City, City Hall, voted bonds Aug. 4, street imprvs. $2,691,000. CD 7/20.

▲ **Tex., Houston**—City, City Hall, bond election Sept. 12, permanent streets paving $5,650,000, streets topping $3,000,000. CD 1/29/58.

EARTHWORK, WATERWORKS

▲ **Pennsylvania**—Pennsylvania Power & Light Co., PP&L Bldg., Allentown, reconstr. and raising dam at hydroelectric plant, Holtwood. $9,000,000.

AIRPORTS

▲ **La., Monroe**—AIRPORT IMPRVS., etc.—City, City Hall, airport imprvs., terminal bldg., Selman Field. $1,000,000. Rader & Assocs., 1st Natl. Bank Bldg., 100 Biscayne Blvd., Miami 32, Fla., engrs.

▲ **Tex., Houston**—AIRPORT—City, City Hall, bond election Sept. 12, airport, $6,000,000. CD 1/29/58.

AMERICANS ABROAD

▲ **AFGHANISTAN**—Royal Govt. of Afghanistan, Kabul, approx. 400 mi. hy. from Kabul to Kandahar. $20,000,000-$30,000,000. Ken R. White, 1567 Marion St., Denver, Colo., U.S.A., consult. engrs.

▲ **France, Amiens**—PLANT—Goodyear International Corp., 120 Broadway, New York, N. Y., U.S.A., tire and tube plant. $7,000,000.

PUBLIC BUILDINGS

▲† **Ark., Blytheville**—HOUSING—Base Procurement Office, Blytheville Air Force Base, plans by Swain & Allen, Gazette Bldg., Little Rock, 470 Capehart family housing units and utilities. $7,000,000. CD 4/27.

▲ **Calif., Davis**—PHYSICAL SCIENCES—University of California, Davis, plans by Barovetto & Thomas, 718 Alhambra St., Sacramento, 3 story rein.-con. physical science bldg. $1,000,000. CD 8/7.

▲ **Calif., Martinez**—LIBRARY, etc.—Contra Costa County, Courthouse, plans by Corlett & Spackman, 347 Clay St., San Francisco, central library and county office, Pleasant Hill. $1,286,570.

▲ **Colo., Aurora**—HOSPITAL—Aurora General Hospital Assoc., 719 Scranton, 100 bed hospital. Formation of Hospital Dist. to be voted Nov. 3 election. $2,000,000.

▲ **Conn., Bethel**—SCHOOLS—Town, Town Hall, Junior High School, $1,200,000; elementary school, Codfish Hill Rd., $500,000.

▲ **Fla., Arcadia**—PRISON—Bd. Comrs. of State Institutions, Tallahassee, conversion of hospital to prison. $1,500,000. CD 3/13/58.

▲ **Ill., Chicago**—SCHOOL—Bd. Educ., 228 N. LaSalle St., plans by Raymond A. Peterson, 4014 W. Dempster St., Skokie, Calhoun School, 2850 W. Jackson Blvd. $1,060,000. CD 6/11/57.

▲ **Ind., Muncie**—ENGLISH, MUSIC, etc.—Ball State Teachers College, Admin. Bldg., plans by Walter Scholer & Assocs., 1114 State St., Lafayette, 2 story, brick, concrete block, stone, rein.-con. English, Music and Auditorium, Sec. 3, 4 and 5 (superstructure). $2,000,000.

▲ **Ky., Lexington**—PHYSICAL AND CHEMISTRY SCIENCE—Commonwealth of Ky., Div. Purchases, Frankfort, plans by Brock & Johnson, 159 Barr St., 3 story, bsmt., brick, rein.-con physical and chemistry science bldg., University of Kentucky. $4,700,000. Staggs & Fisher, 508 E. Main St., consult. engrs.

▲ **La., Baton Rouge**—SCHOOL—East Baton Rouge Parish School Bd., 805 St. Louis St., plans by T. A. Brussard, 2491 Greenwood Dr., McKinley Junior High School. $1,900,000. E. E. Evans, 4755 Convention St., engrs. Bids in fall.

▲ **Mass., Webster**—SCHOOL—Town, School Bldg. Comm., Negus St., plans by Domian & Salk, 340 Main St., Worcester, Mass., Intermediate School near Athletic Field. $1,164,000. CD 7/15.

▲ **Mich., River Rouge**—CITY HALL, etc.—River Roque Public Building Auth., City Hall, plans by Smith, Hinchman & Grylls Assoc., Inc., archts.-engrs., 3107 W. Grand Blvd., Detroit, Mich., city hall with circular glass chamber on 3rd fl., 2 story fire station and police headquarters, park. $2,935,000.

▲ **N. Y., Jericho**—SCHOOL—Bd. Educ. plans by Knappe & Johnson, 2110 Northern Blvd., Manhasset, South Parkway Elementary School; Cantiague Rock Rd. and Jackson Elementary School addn. $1,288,000. Fromme & Voskanian, 56 W. 45th St., New York, N. Y., structural engrs. CD 5/8.

▲ **N. Y., New York**—HOUSING—New York City Housing Auth., 299 Broadway, Zone 7, plans by Kiff, Colean, Voss & Souder, office of York & Sawyer, 101 Park Ave., Zone 17, Proj. NY-5-33, two 22 story and three 18 story James Madison Housing, Madison and Park Aves., E. 107th to 110th Sts. $8,000,000. Severud-Elstad-Krueger Assoc., 415 Lexington Ave., Zone 17, consult. engrs. Meyer Strong & Jones, Inc., 230 Park Ave., mechanical engrs. CD 2/28/58.

▲ **Pa., Ebensburg**—SCHOOL—Central Cambria Jt. School Dist., secondary school alterations. $1,000,000.

▲ **S. C., Greenville**—SCHOOLS—Greenville Co. Bd. Educ., Courthouse, plans by J. E. Sirrine Co., 219 Main St., Northside High School, $1,500,000; plans by R. H. Longstreet & Assocs., 426 N. Pleasantburg Dr., Happy Hearts Elementary School, $600,000.

▲ **Tex., Houston**—CITY HALL—City, City Hall, bond election Sept. 12, city hall addn. $2,000,000. CD 12/30/57.

▲ **Tex., Houston**—CIVIC CENTER—City, City Hall, bond election Sept. 12, Civic Center addn. $2,000,000. CD 1/29/58.

▲ **Tex., Kingsville**—HOSPITAL—Kleberg County, Courthouse, plans by Jessen, Jessen, Millhouse & Greeven, 2816 Hemphill Park, Austin; county hospital addn., remodeling. $1,200,000.

▲ **Vt., Brandon**—SCHOOL—Brandon-Pittsfield Union School Dist., Brandon, plans by Julian Goodrich, 930 Shelburne Rd., South Burlington, Otter Creek Union High School. $1,000,000. Constr. 1959-1960.

▲ **Ont., Kincardine**—NUCLEAR PLANT—Atomic Energy of Canada Ltd., Chalk River and Ontario Hydro-Electric Power Comn., 620 University Ave., Toronto; 200,000 kw. nuclear plant, Lake Huron. $60,000,000.

▲ **Ont., Owen Sound**—HOSPITAL—Ontario Mental Health Bd., Ontario Dpt. Health, Parliament Bldgs., Toronto, mental hospital, Meaford Rd. $6,000,000.

COMMERCIAL BUILDINGS

▲ **Calif., Livermore**—SHOPPING CENTER—Isador Schuman, c/o Goodwin B. Steinberg, archts., 141 1st St., Los Altos, shopping center. $2,500,000.

▲ **Calif., Sacramento**—HOTEL—Capitol Claremont Corp., Ashbury and Claremont Aves., Berkeley, plans by Frank F. Ehrenthal & Assocs., 251 Post St., San Francisco, 18 story, 350 room Capitol Claremont Hotel; Capitol Mall redevelopment area. $6,000,000. Constr. in 6 months.

▲ **Calif., Sacramento**—SHOPPING CENTER—Convenience Shopping, Inc., c/o Leo A. Daly & Assoc., archt., 49 Maiden Lane, San Francisco, shopping center, in Redevelopment area, constr. on platform with parking underneath. $1,200,000.

▲ **Calif., Santa Barbara**—YMCA—Y.M.C.A., Santa Barbara, plans by Arendt, Mosher & Grant, 116 E.

HARDWARE For HEAVY CONSTRUCTION

plant & main office: 9 Lister Avenue, Newark 5, New Jersey
N. J. N. Y.
MArket 3-0333 REctor 2-3958

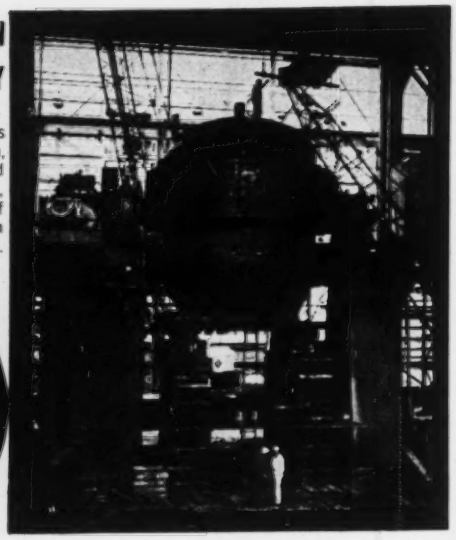
WET JOB? whether **POWER PLANT**

or other wet work— for "quick dry"...specify...

GRIFFIN
WELLPOINT CORP.
SALES • RENTAL • CONTRACT
881 E. 141st St., New York 54, N. Y.
Hammond, Ind. • Jacksonville, Fla.
Houston, Tex. • W. Palm Bch., Fla.

MASSIVE INSTALLATION FOR A GIANT INDUSTRY

First in the West — 3 oxygen steel furnaces at Kaiser Steel Corporation, Fontana, California. Assembled and erected by Pacific Crane & Rigging Co., these furnaces touched off a new era of industrial growth in the Western United States.



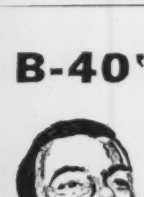
Pacific
CRANE & RIGGING CO.
MECHANICAL CONSTRUCTORS

PACIFIC CRANE & RIGGING CO.
6855 E. Rosecrans Ave., Paramount, California, NEvada 6-9213 — MEtcalf 4-0110

EQUIPMENT SETTING • POLE RIGGING • MISSILE EQUIPMENT • SPECIAL PROJECTS
• CRANE SERVICE • JACK & ROLLER RIGGING • MECHANICAL PIPING

B-40 "EXPLORER" helps contractor "bid with assurance"*

and *win contract* on $12,000,000 push-button railroad yard for the New York Central System . . .



*GEORGE DIRKES
Chief Geologist

"Because of its extreme versatility and portability, our B-40 EXPLORER best suits our interests compared with various drills we have used in the past."*

The EXPLORER drilled 50 test holes over the 526 acre site near Avon, Indiana to pinpoint wet areas and soil variations. The finding helped Kiewit, Condon and Cunningham, joint venture contractors, submit a successful bid to "move and grade 1,000,000 cubic yards of earth, lay sub-ballast for 70 miles of track and install 70,000 linear feet of drain tile."*

The B-40 EXPLORER pays off in production and profits. Write today for prices and specifications.

MOBILE DRILL

MOBILE DRILLING, Incorporated
960 North Pennsylvania Street • Indianapolis 4, Indiana

Sola St., reinforced block, YMCA, State St. $1,000,000.

▲ **Fla., Palm Beach**—APARTMENTS—Mayel Enterprises, Winter Park, c/o James Gamble Rogers, Lovelock & Fritz, archts., 145 Lincoln Ave., Winter Park, 4 concrete, brick, steel apartment bldgs. $1,000,000.

▲ **Fla., Sanford**—SHOPPING CENTER—W. A. Knott & William J. Lane, c/o Florida Land Planning, Inc., 1921 E. Colonial Dr., Orlando, Mid-Florida Plaza Shopping Center, incl. 2,000,000 sq. ft. stores, parking and swimming pool, U. S. Hys. 17 and 92 and St. Rte. 436 near Sanford, Seminole Co. $20,000,000.

▲ **Hawaii, Honolulu**—OFFICE, etc.—Roy Kelley, 2168 Kalia Rd., 16 story office and stores, Seaside and Kalakaua Aves. $4,500,000.

▲ **Hawaii, Pokai Bay**—CO-OPERATIVE APARTMENTS, etc.—Vanatta Enterprises, 829 Alakea, Honolulu, "Second Waikiki", four co-operative apartments, restaurants and shops. $4,000,000.

▲ **La, Monroe**—SHOPPING CENTER, etc.—Gulf Inland Corp., c/o Saul Mintz, archt., 2930 Commerce St., 1 story, 100,000 sq. ft., brick shopping center, $1,300,000; paving shopping area and auto center, $100,000.

▲ **Mich., Monroe**—HOSPITAL—Mercy Hospital, Monroe, hospital addn. $2,360,000.

▲ **Mich., Monroe**—HOSPITAL—Monroe General Hospital, hospital, $2,001,484.

▲ **Mo., St. Louis**—OFFICES—Conduit Industrial Redevelopment Corp., c/o G. J. Nooney & Co., 611 Olive St., Zone 1, 3 story or taller each offices, Washington Ave. and Olive St., 3rd and 4th Sts. $1,000,000.

▲ **N. J., Berkeley Heights**—APARTMENT—Leon Adler, 118 Webster St., Irvington, 320 unit garden apartment at Briarwood and Springfield Ave. $1,000,000.

▲ **N. J., Glen Gardner**—HOUSES—George Blew, c/o Edward Changler, Rte. 69, Pattenburg, 41 houses, off Sodom Lane, $1,000,000.

▲ **N. J., Lebanon**—HOUSES—Emil Gottlieb, R.D., Lebanon, 128 houses, Bissel Rd. $1,000,000.

▲ **N. J., Woodbridge**—DEPARTMENT STORE—Henry I. Chanin, 122 E. 42 St., New York 17, N. Y., plans by I. S. Chanin, 122 E. 42 St., New York 17, N. Y., 1 and 2 story, glass and steel department store on 44-acre tract, Rte. 1, bounded by Ford Ave. and Garden State Parkway. $5,000,000. S. Klein, lessee. CD 4/13.

▲ **N. Y., Amherst**—HOMES—Juette Builders, 20 Coronation Dr., Amherst, 129 homes, Hartford Estates addn. $3,000,000.

▲ **N. C., Durham**—APARTMENT—Poplar Apartments, Inc., Erwin Rd., plans by Louis H. Asbury & Assocs., 121 Brevard Court, Charlotte, 200 unit apartment addn. $1,500,000.

▲ **O., Toledo**—OFFICE—701 Jefferson Building Co., c/o Norris Gillette, 320 Michigan Ave., plans by Bellman, Gillette & Richards, 1600 Madison St., 3 story office, $1,000,000. Ohio Fuel Gas Co., lessee.

▲ **Pa., Phila.**—HOSPITAL—Pennsylvania Hospital, 8th and Spruce Sts., 8 story air-conditioned hospital. $3,700,000.

▲ **Tex., Beaumont**—CHURCH—First Baptist Church, 848 Broadway, plans by Ingram & Harris, 1125 Freeway North, church. $1,250,000. CD 8/10.

▲ **Tex., Houston**—OFFICE—Humble Oil & Refining Co., 1216 Main St., plans by Welton Becket & Assocs., 2225 Bryan St., Dallas; Golemon & Rolfe, 5100 Travis St., Houston, and Pierce & Pierce, 2200 Welch St., Houston, 44 story office. $32,000,000. Bids Spring 1960. CD 10/7.

▲ **Que., St. Eustache**—SHOPPING CENTRE—Les Enterprises du Domaine Ltee c/o B. A. Corbo, 49 rue Labrie, plans by Thibodeau & Thibodeau, 940 Cote de Liesse, Montreal, shopping centre, Hy. 8 at northwest city limits, $1,000,000.

INDUSTRIAL BUILDINGS

▲ **Ark., Stuttgart**—PLANT—Arkansas Grain Corp., soybean oil extraction plant. $1,500,000.

▲ **Tenn., Kingsport**—PLANT—American Saint-Gobain Corp., 25 Madison Ave., New York, N. Y., 350 tons per day plate glass production plant. $50,000,000.

▲ **Tex., Dallas**—MOTOR FREIGHT—Red Ball Motor Freight Inc., 1210 S. Lamar St., plans by Geo. L. Dehl, archt.-consult. engr., 2101 N. St. Paul St., motor freight $1,250,000.

▲ **Utah, Garfield**—SMELTING PLANT—Kennecott Copper Corp., Utah Copper Div., Kearns Bldg., Salt Lake City, altering smelting plant. $10,000,000. Western Knapp Engineering Co., 650-5th St., San Francisco, Calif., consult. engr. CD 3/4.

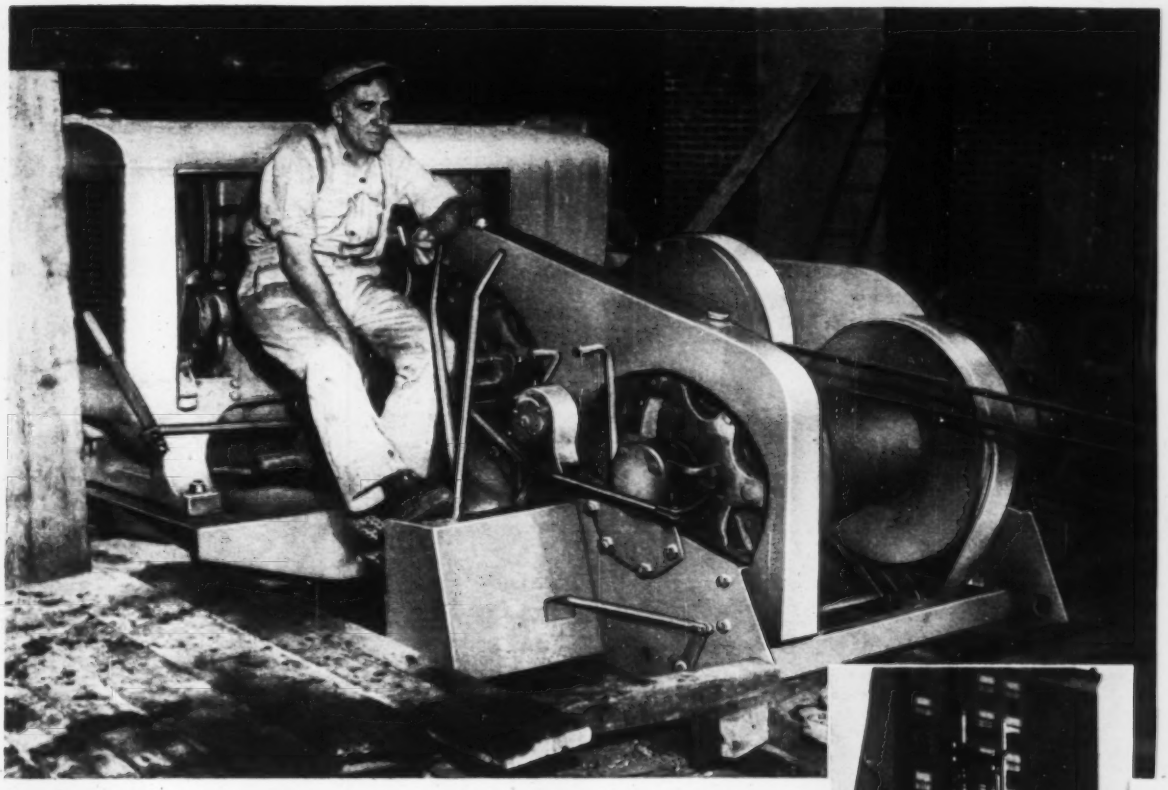
▲ **W. Va., Fairmont**—ALUMINUM ROLLING MILL—Fairmont Aluminum Co., P.O. Box 912 (Sub. Cerro de Pasco Corp., 300 Park Ave., New York, N. Y.), aluminum rolling mill addn. $10,000,000.

UNCLASSIFIED

▲ **Hawaii, Honolulu**—ARENA—City and Honolulu County, City Hall, plans by Merrill, Simms & Roehrig, Damon Bldg., 400 ft. arena with vaulted concrete roof. $5,500,000.

▲ **Tex., Dallas and Fort Worth**—STADIUM—Dallas County and Fort Worth County, County Comrs. Court, Dpt. Public Parks, stadium for major league baseball between Dallas and Fort Worth. $1,000,000.

▲ **Tex., Houston**—PARKS, etc.—City, City Hall, bond election Sept. 12, parks, recreation, playgrounds. $4,000,000. CD 1/29/58.



"The finest hoist I ever operated"

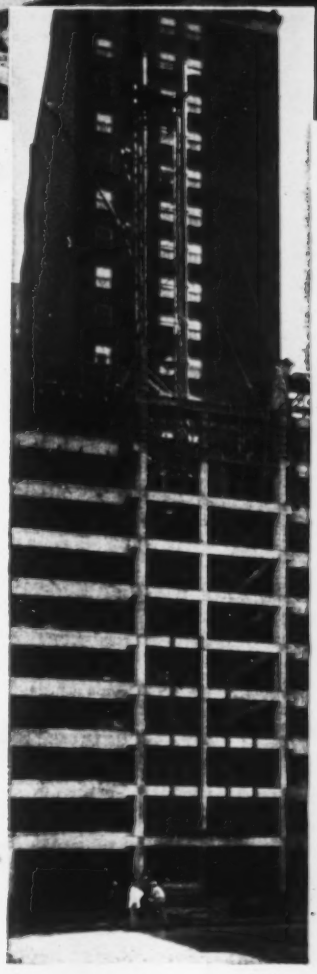
Ask the operator on any job why he likes his Clyde and he'll tell you feature by feature.

Maybe the internally expanding band friction clutch, its extremely easy and smooth engagement and release and the elimination of shock loads is a feature he appreciates most. Or the fact that he need only 'toe' the extra heavy duty, large diameter brake for safe, sure and accurate load control.

No doubt he will tell you about some of the many other features he likes . . . anti-friction bearings throughout that result in greater line pull with less power . . . low cost maintenance as well as low operating costs . . . correct diameter, semi-steel drums that afford smooth and rapid free spooling.

Clyde operators and owners too, are Clyde's best hoist salesmen . . . the finest compliment that can be paid to the modern engineering and precision manufacture of the Clyde line of finest quality material handling equipment.

For the complete story on the advantages of Clyde's design, write for Bulletin 34A.



This 15-story parking garage in St. Louis is but one of the many jobs on which this Clyde Hoist has helped to maintain or even better construction schedules.

CLYDE RIC

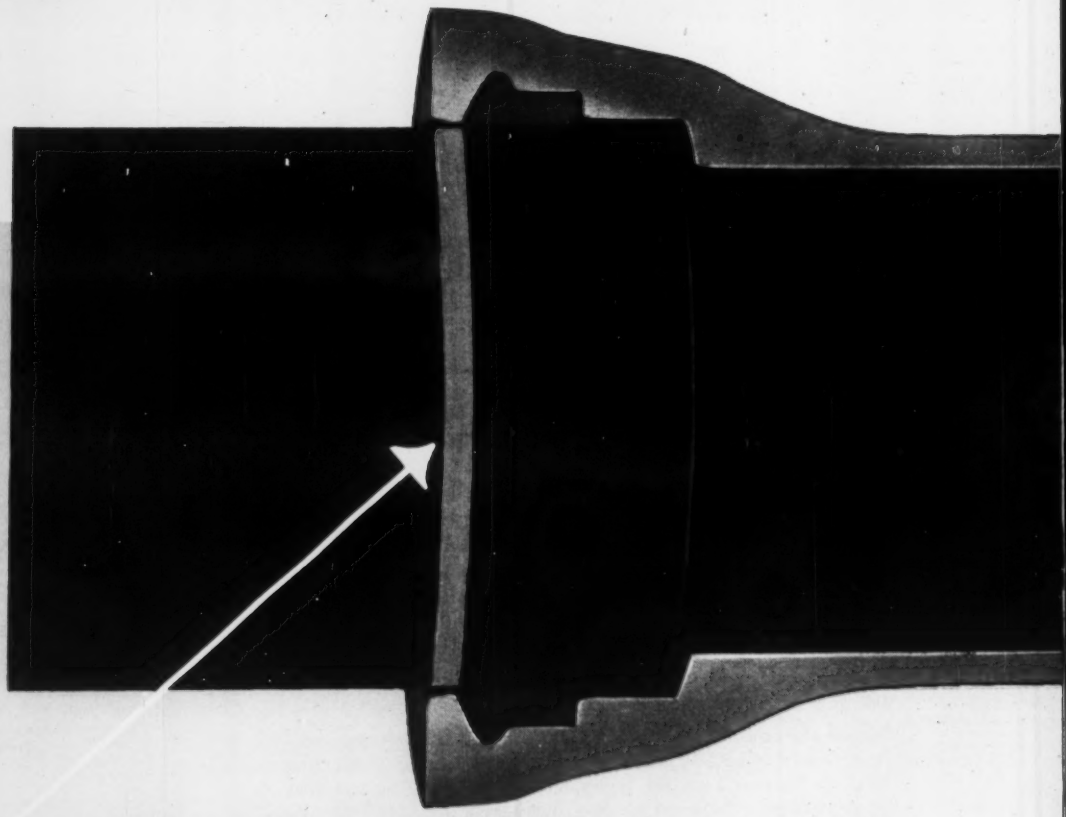
A SUBSIDIARY OF

CLYDE IRON WORKS, Inc.

Established 1899
DULUTH 1, MINNESOTA

HOISTS : DERRICKS : WHIRLEYS : UNLOADERS
BUILDERS TOWERS : CAR PULLERS : ROLLERS

CLOW



This YELLOW STRIPE on

CLOW Bell-Tite Joint Pipe

is your guide line to a quick bottle-tight seal

This circular yellow stripe is painted on the plain end of each length of CLOW Bell-Tite Joint pipe. It serves as a guide in making up the joint, to provide a fast, positive visual check that the the joint is completely and correctly assembled.

The edge of the stripe farthest from the plain end measures approximately one-half inch less than the depth of the Bell-Tite bell. Thus, in assembly, the joint is made pressure-tight when the stripe is no longer visible.

The seal is achieved by the use of a single, thick-section, high durometer molded rubber gasket. When compressed in position by the entering plain end of pipe, it forms a pressure-tight seal with generous sealing area which permits ample deflection to meet casual curves or grades.

CAST IRON

PIPE

with patented* Bell-Tite Joint

*Patent No. 2898131

MORE MAIN FOR YOUR MONEY

Costs less to buy

Only one accessory is required to make a pressure-tight seal with a CLOW Bell-Tite Joint —a single, molded rubber gasket. There are no extras—no bolts, no nuts, no followers, no couplings. This economical pipe is strong, tough, uniform and durable for long-life underground service. It is available in any specified thickness or weight class in accordance with ASA, AWWA, or Federal specifications from 3" to 24".

Costs less to install

Assembly is quick, simple and easy. Pressure-tight joint is formed instantly by merely inserting the rubber gasket and pushing the pipe home to its seat. It can be installed in a wet trench and even under water. Rate of installation usually is limited only by speed of excavation. It permits ample deflection for casual curves or grades. Bell-Tite Joint pipe is Underwriters' Listed for working pressures up to 350 psi. Available in diameters up to 24".

CLOW CAST IRON PIPE

JAMES B. CLOW & SONS, INC.

201-299 North Talman Avenue, Chicago 80, Illinois

Subsidiaries:

Eddy Valve Company
Waterford, N.Y.

Iowa Valve Company
Oskaloosa, Iowa

LLV DUSTLESS AIR LEG DRILLS — approved by the U. S. Bureau of Mines; preferred by operators!

Drill Dustless and Dry

with Le Roi LLV Air Leg Drills

Let's talk about legs — Le Roi LLV Dust-Collecting *Air Leg Drills* that is, and how they save you money on any tunnel or mining job. They speed drilling and drastically reduce dust count *without using a single drop of water!*

Dust-Collecting Air Leg Drills rid you of the bother and expense of hauling water, or maintaining water systems . . . eliminate slippery footing and sinking pillars . . . make "lost holes" and stuck steels a bad memory. They keep holes cleaner for faster, deeper penetration — and draw all cuttings through the drill steel and out the side of the chuck housing, *never through the machine.*

Keep production "high and dry" with the Le Roi LLV's. See your nearby Le Roi distributor for a demonstration of these remarkable units, or write for details to Le Roi Division, Westinghouse Air Brake Co., Milwaukee 1, Wis.

AT-910

LE ROI NEWMATIC® AIR TOOLS

PORTABLE AND TRACTAIR® AIR COMPRESSORS • STATIONARY AIR COMPRESSORS • AIR TOOLS

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

August 31, September 8 Connecticut

STREETS AND ROADS

August 31, September 8 Connecticut

▲† **New Hampshire**—BA On Or About 11/1—U. S. Eng., 562 Congress St., Portland, Me., Everett Dam, Hopkinton Dam, Canal No. 2, and appurtenant structures and Winslow Road relocation-Hopkinton-Everett Reservoir, Contoocook and Piscataquog Rivers, ENG-19-016-60-1. $10,000,000-$15,000,000. CD 9/23.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW HAMPSHIRE**—Dpt. P. Wks. & Hys., Concord, **J. F. Fitzgerald Constr. Co.**, 1000 Turnpike St., Canton, Mass., CA $1,576,617, b. conc. 2.60 mi. and 185 ft. and 165 ft. steel beam bridges, Northfield, Merrimac Co. Bids July 23. CD 7/29, under LB.

▲ **NEW HAMPSHIRE**—Dpt. P. Wks. & Hys., Concord, **Manchester Sand Gravel & Cement Co., Inc.**, P.O. Box 536, Manchester, N. H., CA $1,801,792, hot. b. conc. roadway 3.85 mi. (4 lane divided) and 332 ft. steel beam bridge, Canterbury and Northfield, Merrimac Co. Bids July 9, awarded July 31. CD 7/17, under LB.

▲ **NEW HAMPSHIRE**—Dpt. P. Wks. & Hys., Concord, **J. F. White Contg. Co.**, Box 358, Westwood, Mass., CA $1,431,650, hot b. conc. roadway 52 ft., 49 ft., and 64 ft. steel beam bridges, Hopkinton, Merrimack Co. CD 7/2, under LB.

▲ **Construction Service Co., Inc.**, P.O. Box 311, Bound Brook, N. J., CA $1,992,733, est., $2,000,000, Contr. 252, distribution water lines from Shaft 9A, city tunnel, Malden and Medford, MASSACHUSETTS. Commonwealth of Mass., Metropolitan Dist. Comn., Constr. Div., 20 Somerset St., Boston, Mass. Bids Aug. 11, awarded Aug. 14. CD 8/13, under LB.

BUILDINGS—LB & CA

▲ **M. S. Kelliher Co.**, 10 Tremont St., Boston, Mass., LB $1,446,800, JUNIOR HIGH SCHOOL, WAKEFIELD, MASS. Town, Junior-Senior High School Bldg. Comn., 465 Main St., Wakefield, Mass. Bids Aug. 12. CD 7/20.

▲ **John Zandonella, Inc.**, 70 Chase St., Bridgeport, Conn., LB, $1,426,000 (8 bidders), two 4 story, 80,000 sq. ft. men's DORMITORIES, Proj. No. Conn. 6-CH 8 (D), BRIDGEPORT, CONN. University of Bridgeport, 200 Park Place, Bridgeport, Conn. Bids Aug. 11. CD 7/15.

▲ **Schnier & Scholmberg**, 18 Raymond Rd., West Hartford, Conn., Owner Builds, $2,196,430, 157 HOUSES, "Pleasant View Park", Center St., WINDSOR LOCKS, CONN. Roland Aubin, Pleasant Valley Rd., South Windsor, Conn., archt. CD 7/2.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

September 10 New York

BUILDINGS—BA

▲ Md., **Riverdale**—OFFICE—BA 9/2—Kiplinger Washington Editors, Inc., 1729 H N.W., Wash., D. C., office, south side East-West Hy., opposite Prince George's Plaza Shopping Center. $1,500,000. Bids July 14 rejected, LB $1,917,207. CD 7/20, under LB.

▲ Pa., **Pottsville**—NURSES HOME, etc.—BA 9/9—Pottsville Hospital, Pottsville, nurses home, incl. indoor pool, boiler room addn. Plans deposit $50. The Ballinger Co., 1625 Race St., Phila., Zone 3, archt. CD 7/9, under LB.

BUILDINGS—SLC

▲ Md., **Suitland**—SCHOOL—Archdiocese of Washington, 1721 Rhode Island Ave. N.W., Wash., D. C., soon lets contract girls' high school, known as LaReine School, 2400 Silver Hill Rd. for The Bernadine Sisters, $1,600,000. Philip Schreiber, 1420 K St. N.W., Wash., D. C., archt. CD 8/7.

HEAVY CONSTRUCTION—LB & CA

▲ **Emerson Garden Electric Co., Inc.**, 485 Lexington Ave., New York, N. Y., CA $2,802,576, 345 KV transmission line from Niagara Switchyard to Rochester Station, Niagara and Monroe Counties, No. PA 9-2. Contr. AL 2. NEW YORK Power Authority of State of New York, The Coliseum Tower, 10 Columbus Circle, New York 19, N. Y. Bids July 21. CD 7/23, under LB.

▲† **Al Johnson Constr. Co.**, 608 Feshay Terrace, Minneapolis, Minn., CA $5,004,780, dredging Delaware River between Phila., Pa. and Trenton, N. J. incl. removal, disposal of 900,000 cu. yds., PENNSYLVANIA AND NEW JERSEY. U. S. Eng., 2635 Abbottsford Rd., Phila., Pa. Bids July 23. CD 7/29, under LB.

BUILDINGS—LB & CA

▲ **341 East 34th St., Inc.**, 630 Third Ave., New York, N. Y., Owner Builds, $2,500,000, APARTMENT, 341-49 East 34th St., NEW YORK, N. Y. Leo Stillman, 332 E. 149th St., New York 51, N. Y., archt. CD 4/21.

▲ **Stephen B. Palmer**, Orange Bank Bldg., Orange, N. J., Owner Builds, $4,000,000, 145 HOUSES at University Hall, Franklin Twp., MIDDLEBUSH, N. J.

▲ **Chanin Organization**, 122 E. 42 St., New York 17, N. Y., Owner Builds, $5,000,000, 1 and 2 story brick, steel, glass DEPARTMENT STORE, on 44 acre tract, Rte. 1 and Ford Ave. to be occupied by S. Klein Dpt. Store, WOODBRIDGE, N. J. CD 8/11.

▲ **Nason & Cullen, Inc.**, 65th and Vine Sts., Phila., Pa., CA $3,750,000, 3 story, 236' x 75 ft. brick, block, structural steel SCIENCE BLDG., VILLANOVA, PA. Villanova University, Villanova, Pa. Bids Aug. 4. CD 7/29.

▲ **Piracci Constr. Co.**, 2552 Woodbrook Ave., Baltimore, Md., LB $2,667,900 (9 bidders), 2 story, brick, concrete, steel, block Linthicum JUNIOR-SENIOR HIGH SCHOOL, Linthicum Heights, ANNAPOLIS, MD. Bd. Educ. Anne Arundel Co., Annapolis, Md. Bids Aug. 11. CD 8/4.

▲ **Coastal Constr. Co.**, c/o owner, CA Est. $1,306,000, 12 APARTMENT, 4700 Block Haldane Rd., 4700 Sinclair Lane, 5000 Block Conant Way, 5000 Block Lodgestone Way, 5000 Block Raintree Way, 4700 Block Parkside Garden Lane, BALTIMORE, MD Iberian Corp., 11 E. Fayette St., Baltimore 2, Md.

▲ **John Tester & Son**, Clinton, Md., LB $1,521,217 (4 bidders), Beltsville JUNIR HIGH SCHOOL, Beltsville, MARLBORO, MD. Prince George's County Bd. Educ., Marlboro, Md. Walton & Maddon, 3510 Rhode Island Ave., Mt. Ranier, Md., archts. CD 8/1/58.

▲ **Mulian Constr. Co.**, 3945 Greenmount Ave., Baltimore 18, Md., CA $3,000,000, 9 story, brick, concrete, steel block, terra cotta, air-conditioned, elevator APARTMENT, 11 Slade Ave., PIKESVILLE, MD. Eleven Slade, Inc., 216 E. Lexington St., Baltimore 2, Md. Daniel Schwartzman, 12 E. 36th St. New York, N. Y., archt. CD 12/18, under Owner, c/o Jos. J. Baylin, 216 E. Lexington Ave., Baltimore 2, Md., as owner.

▲ **George Hyman Constr. Co.**, 1010 Vermont Ave. N. W., Wash., D. C., CA $2,365,000, ASPEN HIGH SCHOOL, Wheaton, ROCKVILLE, MD. Montgomery Co. Bd. Educ., Rockville, Md. Bids July 23. CD 7/27, under LB.

▲ **Coe Constr. Co., Inc.**, 1018 Vermont Ave. N.W., Wash., D. C., CA Over $2,000,000, STORE, Wheaton Plaza Regional Shopping Center, for Montgomery Ward, WHEATON, MD. Wheaton Plaza Regional Shopping Center, Inc., 11160 Viers Mill Rd., Wheaton, Md. A. L. Anderson, 1726 M St. N.W., Wash., D. C., archt. CD 5/13.

▲† **Norair Engineering Corp.**, 1118 22 St. N. W., Wash., D. C., LB $23,738,680 (13 bidders), MUSEUM of HISTORY and TECHNOLOGY, Smithsonian Institution, WASH., D. C. General Services Admin., 7 and D Sts. S. W., Wash., D. C. Bids Aug 18. CD 8/4.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

September 4 Kentucky September 9 Virginia

HEAVY CONSTRUCTION—LB & CA

▲ **G. E. Tillman, Inc.**, 702 North Locust St., Centralia, Ill., CA $2,837,700, sewage treatment plant impvs., Contract "B", ATLANTA, GA. City Purchasing Agent, City Hall, Atlanta, Ga. Bids Aug. 12. CD 7/16.

▲ **LOUISIANA**—State Hy. Dpt., Rm. 307, Hy. Office Bldg., Baton Rouge,

Boh Brothers Constr. Co., 2400 Cypress St., New Orleans, La., CA $2,209,861, Bayou Des Allemands Bridge, Rte. LA-US 90, 0.494 mi. Proj. 5-08-20, Lafourche and St. Charles Parishes. Bids June 17, awarded July 15. CD 6/22, under LB.

BUILDINGS—LB & CA

▲ **J. S. Stephens & Sons**, 902 Roma Ave., Tampa, Fla., CA $1,527,726, LIBRARY CLASSROOM, University of South Florida, TAMPA, FLA. Florida State Bd. Control, University of South Florida, Courthouse, Tampa, Fla. Bids Aug. 5, awarded Aug. 14. CD 8/12, under LB.

▲ **Cunningham-Limp**, 3087 W. Grand Blvd., Detroit, Mich., CA Est. $1,500,000 (3 bidders), 1 story, 216,000 sq. ft. concrete block, concrete slab PARTS WAREHOUSE adjacent to Assembly Plant, Grade Lane, LOUISVILLE, KY. Ford Motor Co., The American Rd., Dearborn, Mich. Bids Aug. 8, awarded Aug. 10. CD 7/29.

▲ **Foster & Creighton**, 1st American National Bank, Nashville, Tenn., CA $1,395,000, 155-unit MOTEL, Capitol Hill area, NASHVILLE, TENN. Capitol Park Corp., 410 Union St., Nashville, Tenn. CD 7/20, under LB.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

September 1 Indiana, Michigan

STREETS AND ROADS

September 2 Michigan September 8 Wisconsin

HEAVY CONSTRUCTION—LB & CA

▲ **Witer-Gaddis Corp.**, 3326 W. 3 Ave., Gary, Ind., CA $1,680,575 (2 bidders), interceptor sewers, Glen Park Rd.; CA $684,289 (2 bidders), East Side interceptor sewers, S.E. from 5th and Rhode Island Aves., GARY, IND. City City Hall, Gary, Ind. Bids July 8. CD 7/15, under LB.

▲ **ILLINOIS**—Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldg., Springfield,

Ill.—**Peter J. Crowley Co.**, P.O. Box 144, Maywood, Ill., CA $1,798,884, paving, walls 0.56 mi. Congress St. Expressway, Oak Park, Cook Co.;

Ill.—**Zimmerly Constr. Co.**, Marshall St., Paris, Ill., CA $1,093,049, paving 1.9 mi. Lincoln Ave., Charleston, (FA 17), Coles Co.;

Ill.—**H. Mass Constr. Co.**, Huntley Rd., Algonquin, Ill., CA $989,798, concrete base course 9.43 mi. FA 4 and 109 Rushville to Beardstown, Schuyler Co. Bids July 24, awarded 8/10. Grand total $3,881,691. CD 8/10, under LB.

▲ **Kenny Constr. Co.**, 3220 Oakton St., Skokie, Ill. LB $1,599,681, est. $1,900,000, (8 bidders), No. 80.82-59-28, 11½ x 9 monolithic concrete and 60 in. concrete pipe Combined Union Ave. sewers, CHICAGO, ILL. Dpt. Purchases, City Hall, Chicago 2, Ill. Bids Aug. 18. CD 8/3.

▲ **Malan Constr. Corp.**, 2 Park Ave., New York, N. Y. CA $5,387,000, American Airlines Hangar, O'Hare International Airport. Spec. 80.57-59-27, CHICAGO, ILL. Dpt. Purchases, City Hall, Chicago 2, Ill. Bids July 15. CD 7/17, under LB.

▲† **Five Boro Constr. Co.**, 2 La Fayette St., New York, N. Y., LB $1,837,000 (3 bidders), 1 story, 40,000 sq. ft. hospital, Richard I. Bong Air Force Base, ENG-11-C52-59-103, KANSASVILLE, WIS. U. S. Eng., 475 Merchandise Mart, Chicago 54, Ill. Bids Aug. 14. CD 8/3.

BUILDINGS—LB & CA

▲ **Dahl-Stedman Co.**, 7 S. Dearborn St., Chicago, Ill. CA $1,300,000, 115x134 ft. BANK addn., CHICAGO, ILL. St. Paul Federal Savings & Loan Assn., 6720 W. North Ave., Chicago, Ill. Awarded Aug. 1. CD 6/19.

S. W. **Robbins Constr. Co.**, 228 N. LaSalle St., Chicago 1, Ill., CA $2,500,000, 2 story, 257-unit MOTEL, Joel, 5450 S. Cicero Ave. CHICAGO, ILL. Midway House, c/o Joel Robert Hillman, archt., 8 N. Ogden, Chicago, Ill.

▲ **Miller, Davis & MacDonald, Inc.**, 1029 Portage St., Kalamazoo, Mich., LB $1,672,000 est. $1,622,000. STUDENT CENTER, Northern Michigan College, MARQUETTE, MICH. State Bldg. Dpt., Lewis Cass Bldg., Lansing, Mich. Ralph R. Calder & Assoc., 1212 Kales Bldg., Detroit 26, Mich., archts.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

September 17 South Dakota

STREETS AND ROADS

September 17 South Dakota

▲† **N. M., Los Alamos**—PHERMEX FACILITIES—BA 10/6—Atomic Energy Comn., Los Alamos, Phermex Facilities, TA-15, incl. 12,800 sq. ft., bsmnt., laboratory-office 12,800 sq. ft. power control bldg., detection and phermex chambers, roads, parking areas, chilled water sys., gas, electric transformer stations, etc., Inv. No. 291-60-1. $1,500,000-$1,700,000. Extended date. CD 6/29.

BUILDINGS—BA

▲ **Mont., Billings**—PHYSICAL EDUCATION—BA 9/25 State Bd. Educ., Capitol Bldg., Helena, physical education bldg. Eastern Montana College of Education. $1,400,000. Plans deposit $50. Cushing, Terrell & Assocs., 1333 Airport Rd., archts. CD 9/24.

▲ **Tex., Dallas**—WESTERN TOWN—Bids Asked—City of Dallas (Park Bd.) and State Fair of Texas, c/o Fair Park Grounds and City Hall (selected list of bidders) Grand Ol' Texas Western Town; 84,491 sq. ft. main bldg., water, sanitary sewer lines, bridge, etc. $2,000,000. Peter Wolf & Assocs., Inc., 3800 Party St. (designed) archt.; and Phillips, Proctor, Bowers & Assocs., 3851 Cedar Springs Rd., Dallas, planning consults. Hundley & Haff, 3851 Cedar Springs Rd., engrs. CD 11/22/57.

BUILDINGS—SLC

▲ **Colo., Denver**—RECREATION FACILITIES—Jewish Community Center, 1475 Williams, soon lets contract 1 and 2 story, 70,000 sq. ft. recreation facilities, E. Alameda between South Dahlia and South Elm Sts. $1,500,000. Nat S. Sachter, 4950 E. Evans Ave., archt. Robert M. Morris, 330 W. Asbury, assoc. engr. CD 6/23.

▲† **Mo., St. Louis**—HOTEL, etc.—Kingsman Investment Co., 108 N. Kingshighway, Zone 8, soon lets contract 2 story, ground floor, T-shaped, 53x234 ft. and 49x164 ft., 192-room Diplomat Hotel, incl. 67½x96 ft. public bldg. containing restaurant, meeting rooms, etc., southwest corner Kingshighway and Waterman Ave. $2,500,000. Hausner & Macsai, 104 S. Michigan Ave., Chicago, Ill., and Jos. R. Passoneau, Washington University, Skinker and Forsythe Blvds., St. Louis 5, Mo., archts. Paul Rogers & Assocs., 22 W. Madison St., Chicago, Ill., structural engrs. Paul Gaerusik & Assocs., 53 W. Jackson Blvd., Chicago, Ill., mechanical engrs. CD 6/8.

(Continued on page 69)

Mile-a-day highway paving record set with NOBLE 3B concrete batching plant

5,394 feet of highway paving setting a new 1-day record was supplied entirely by NOBLE 3B concrete batching plant. Two dual drum pavers pouring concrete every 30 seconds on relocation of Rhode Island Routes 2 and 3 depended on an uninterrupted flow of aggregates and cement. The 1150 batches required were batched and discharged by NOBLE 3B on schedule without a hitch! With overhead aggregate storage of 150 tons and separate overhead cement storage of 500 barrels, NOBLE 3B high speed output kept 8 dry batch trucks hauling materials in a steady stream to the paving site 7 miles away. Of all batching plants familiar to the contractor, **Campanella & Cardi,** in its ready-mix concrete division, NOBLE 3B was selected for highest productivity, consistent quality and reliable, economical operation.

NOBLE 3B

3 batchers (2 for aggregates, 1 for cement) weigh materials simultaneously for a *single* batch.

Batching quality concrete over twice as fast as conventional plants, NOBLE 3B keeps pace with fast-moving paving jobs. Sub-assembled at factory, it is transported rapidly to job site and quickly erected with no outside purchase of essential components or extensive field assembly and wiring. A pair of 3B plants set up as a dual twin-driveway single-stop plant for airfield construction when highest output is required can later be split into 2 complete plants for separate highway paving jobs in 1-stop or 2-stop set-ups controlled by a single operator.

NOBLE

Write for Brochure B-285
Noble Company
P. O. Box 1979
Oakland 4, Calif.

NOBLE COMPANY • 1860-7TH ST., OAKLAND, CALIF. • TEMPLEBAR 2-5785

Branches:
CLEVELAND 13, OHIO—75 Public Square, Tower 1-0240
NEW YORK 17, N. Y.—52 Vanderbilt Ave., ORegon 9-6475
SEATTLE 9, WASHINGTON—518 First Ave., North, ATwater 4-4878
Export Distributor, Frazar International Corp., San Francisco
EL SEGUNDO (LOS ANGELES), CALIF.—218 Richmond St., { ORegon 8-6473 / EAstgate 2-4518

DISTRIBUTORS: BIRMINGHAM, ALA., Equipment Service Co., Inc. • PHOENIX, ARIZ., Western Machinery Co. • LOS ANGELES, CALIF., Smith-Booth-Usher Co. • DENVER, COLO., Western Machinery Co. • CHICAGO, ILL., Arrow Contractors Equipment Co. • INDIANAPOLIS, IND., Flesch-Miller Tractor Co. • DANVILLE, KY., Central Supply & Equip. Co., Inc. • BOSTON, MASS., Hedge & Mattheis Co. • DETROIT, MICH., R. G. Moeller Co. • ST. PAUL, MINN., Borchert-Ingersoll, Inc. • BILLINGS, MONT., Seitz Machinery Co. • ST. LOUIS, MO., George F. Smith Co. • OMAHA & NORTH PLATTE, NEB., Construction Service Equipment Co. • ALBUQUERQUE, N. MEX., Contractors Equipment & Supply Co. • SYRACUSE, N. Y., L. B. Smith, Inc. • STATESVILLE, N. C., Interstate Equipment Co., Inc. • CLEVELAND, OHIO, Wepco Equipment Co. • PORTLAND, ORE., Clyde Equipment Co. • HARRISBURG, PA., Highway Equipment & Supply Co. • PITTSBURGH, PA., Equipment & Supplies, Inc. • NASHVILLE, TENN., Peterson Machinery Co. • DALLAS, TEX., Lumby Machinery Co. • EL PASO, TEX., Border Machinery Co. • HOUSTON, TEX., Pearce Equipment Co. • SAN ANTONIO, TEX., Girard Machinery & Supply Co. • SALT LAKE CITY, UTAH, Arnold Machinery Co. • SEATTLE, WASH., Clyde Equipment Co. • SPOKANE, WASH., Western Machinery Co. • CASPER, WYO., Studer Tractor & Equipment Co., Inc. • CALGARY, ALB., Precision Machinery & Equipment, Ltd. • VANCOUVER, B. C., National Machinery Co., Ltd. • TORONTO, ONT., Crothers Mfg., Ltd. • MONTREAL, QUE., Laurentide Equipment Co., Ltd. • CINCINNATI, OHIO, The Bode-Finn Co. • WINNIPEG, MANITOBA, Prairie Equipment & Radiators Co., Ltd.

(Continued from page 67)

HEAVY CONSTRUCTION—LB & CA

▲ **Northern States Power Co.**, 15 South Fifth St., Minneapolis, Minn., Owner Builds. $1,590,000, natural gas pipe lines service, Stillwater, MINNESOTA.

▲† **Beacon Constr. Co.**, 100 Hano St., Boston, Mass., CA $1,858,219, est. $1,617,849. Sched. 1, Nike Hercules Facility, Offutt Air Force Base, ENG 25-066-59-126, FORT CROOK, NEB. U. S. Eng., 1709 Jackson St., Omaha 2, Neb. Bids June 23, awarded Aug. 14. CD 6/29, under LB.

▲ **KANSAS**—State Hy. Comn., Manhattan, Kan.—**Freeto Constr. Co., Inc.**, Box 609, Pittsburg, Kan., CA $879,634, substructure Bridge No. 16-81-2.2, Sta. 168 plus 27 (2 abutments and 29 piers). SP 16-81 K 1020 (3), Riley Co.;
Kan.—**J. A. Tobin Constr. Co.**, 3701 Rainbow Blvd., Kansas City, Kan., CA $1,553,060, superstructure Br. No. 16-81-2.2, Sta. 168 plus 27,100 ft. 138 ft. 27-184 ft. 138 ft. steel girder. SP 16-81 K 1020 (3), Riley Co. Bids Aug. 6. CD 8-11, under LB.

▲ **KANSAS**—State Hy. Comn., Junction City, Bids opened 8/13.
Koss Constr. Co., 510 Iowa-Des Moines Bank Bldg., Des Moines 9, Iowa, LB $1,463,017 (2 bidders), concrete pavement 6.533 mi. SP 70-31 I 70-5(29) 294, Geary Co. CD 7/23.

▲† **Ace Constr. Co.**, 8711 Shamrock Rd., Omaha, Neb., CA $2,247,742, Schedule I, relocation Missouri Pacific R.R., Tuttle Creek Dam and Reservoir and Big Blue River area near Manhattan, CIVENG-23-028-59-121, KANSAS. U. S. Eng., 1800 Federal Office Bldg., Kansas City 6, Mo. Bids July 30. CD 7/16;
List & Clark Constr Co., 2 W. 40th St., Kansas City, Mo., CA $549,706, Schedule II, of relocation Missouri Pacific R.R., Tuttle Creek Dam and Reservoir and Big Blue River area, near Manhattan (Kansas).

▲† **Brown-Boveri Corp.**, 19 Rector St., New York, N. Y., LB $2,003,660, three turbine generators, Eufaula Reservoir, ENG-34-066-59-106, OKLAHOMA. U. S. Eng., Box 61, Tulsa, Okla. Bids July 30. CD 7/22.

▲ **H. B. Zachary Co., Constr. Div.**, Box 10188, San Antonio, Tex., CA $1,445,000, 42 mi. 20 and 24 in. crude line near Kingsville from Kings Ranch, Kleberg Co., TEXAS. Humble Oil & Refining Co., 1216 Main St., Houston, Tex. CD 6-11/58.

▲ **TEXAS**—State Hy. Comn., Austin, Bids opened 8/18.
Tex.—**Dodds & Wedegartner, Inc.**, Box 1751, San Benito, Tex., LB $688,012, flex. base, b. conc. 0.662 mi. U.S. 83, Proj. U 93 (12), Cameron Co.;
Tex.—**Border Road Constr. & Ross C. Watkins**, Box 647, Laredo, Tex., LB $969,588, flex. base, b. conc. 2.855 mi. Hy. I.H. 35, Proj. I 35-1 (51) 5, Webb Co.; foregoing CD 7/23.
Tex.—**B.H.C. Materials Co. & Fred Hall & Sons**, Box 234, Temple, Tex., LB $425,635, base and hot mix b. conc. 3.603 mi. Hy. U.S. 190, Proj. C 231-3-19, Bell Co.;
Tex.—**Century Constr. Co.**, Box 5175, Houston, Tex., LB $1,321,230, cement stab. base, hot mix b. conc. 11.49 mi. Hy. St. 35, Proj. C 178-2-17, etc., Brazoria Co.;
Tex.—**H. B. Zachry Co.**, P.O. Box 10188, San Antonio, Tex., LB $2,981,959, flex. base, hot mix b. 9.26 mi. Hy. I.H. 35, Proj. I 35-3 (101) 213, Hays Co.; foregoing CD 8/3.

▲† **George A. Rutherford, Inc.**, P.O. Box 1778, Albuquerque, N. M., CA $1,657,000, NIKE-HERCULES facility, Walker Air Force Base, Inv. No. ENG-29-005-59-123, ROSWELL, N. M. U. S. Eng., P.O. Box 1538, Albuquerque, N. M. Bids June 23. CD 6/30, under LB.

BUILDINGS—LB & CA

▲ **Spiegelberg Lumber & Building Co.**, Laramie, Wyo., LB $2,140,000, est. $2,200,000 (6 bidders), HIGH SCHOOL, CHEYENNE, WYO. School Dist. No. 1, 2118 Central Ave., Cheyenne, Wyo. Bids Aug. 18. CD 8/3.

FAR WEST

BUILDINGS—BA

▲ **Utah, Provo** — ADMINISTRATION and GENERAL SERVICES—BA 9/15—Brigham Young University, 3 story, bsmt., 96,000 sq. ft. administration and general services bldg. at University. Over $2,000,000. Fetzer & Fetzer, 415 Zions Savings Bank Bldg., Salt Lake City, archts. CD 7/9.

▲ **Calif., San Luis Obispo**—LITTLE THEATER-MUSIC BLDG.—BA 9/30—State Div. Architecture, 1100 S. Grand Ave., Los Angeles, 2 story, 55,000 sq. ft. floor area, air conditioning, etc., rein.-con. little theater-music bldg. California State Polytechnic College, W.O. 4160GC-16. $1,300,000. Plans deposit $100. CD 12/4.

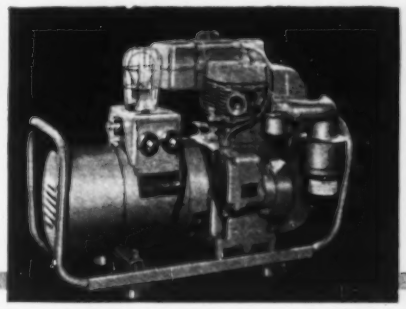
HEAVY CONSTRUCTION—LB & CA

▲ **IDAHO**—State Hy. Dpt., Boise,
Hoops Constr. Co., Twin Falls, Idaho, CA $2,529,768, 4-lane divided roadway, drainage structures, 4 grade separation structures and plant mix bit. surf. 10.341 mi. Interstate No. 80N, and roadway, drainage structures and plant mix bit. surf. 0.524 mi. US 30 connection, Payette Co. Bids July 14; awarded Aug. 13. CD 7/21, under LB.

▲ **Morrison-Knudsen Co., Inc.**, P.O. Box 450, Boise, Idaho, LB $4,734,656, est. $4,000,000 (13 bidders), 480,220 ft. 8- to 36-in. sewer mains and 228,300 ft. 4 and 6 in. service connections, BOISE, IDAHO, Boise Bench Sewer Dist., 407 N. Orchard St., Boise, Idaho. Bids Aug. 13. CD 7/16.

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento, Bids opened 8/19.
Madonna Constr. Co., P.O. Box 910, San Luis Obispo, Calif., LB $4,739,175 (10 bidders), grading, paving 5.1 mi. 4 lane freeway U.S. Hy. 40, 111-Pla-37-D, Placer Co. CD 7/15.

When only POWER can help you...



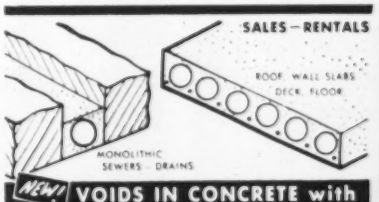
in emergency
in remote places
anywhere
anytime
IT'S PORTABLE POWER

There comes a time when only 60 cycle, 115 volts can help you. That's when one of these portable generator packages in five sizes, can give you 600 to 2500 watts of help. Two men can carry the biggest one. You can use it to operate standard motor driven equipment and tools in remote locations away from highlines, or you can use it to keep you going when normal electric supply is interrupted. Handy to have anytime... vital in emergency. Other mobile units available up to 10kw. Write for complete information: Fairbanks, Morse & Co., Chicago 5, Illinois.

FAIRBANKS-MORSE
a name worth remembering when you want the BEST

HOME WATER SYSTEMS • PUMPS • SCALES • GENERATORS • ELECTRIC MOTORS • COMPRESSORS
DIESEL, DUAL FUEL AND GAS ENGINES • LOCOMOTIVES • MAGNETOS

SALES—RENTALS



NEW!! **VOIDS IN CONCRETE with ELGOOD INFLATABLE VOID FORMS**

REUSABLE RUBBER VOID FORMS FOR SEWERS, SLABS, DRAINS & DUCTS. SUPERSEDES ALL VOID FORMING TECHNIQUES.

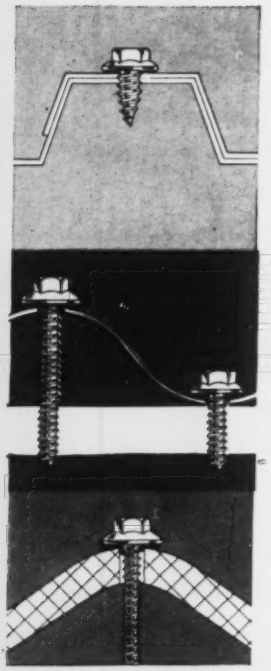
- ALL DIAMETERS ¾" TO 120"
- GUARANTEE MINIMUM OF 100 USES Field experience, 250-3000 uses
- STAFF AVAILABLE FOR SPECIALIZED PROBLEMS

ELGOOD CONCRETE FORMS CORP.
378 TEN EYCK ST., BROOKLYN, N.Y. HY 7-5445

PHOENIX BRIDGE COMPANY
Engineers—Fabricators
Erectors
Structural Steel
BRIDGES and BUILDINGS
General Office and Shops
PHOENIXVILLE, PA.
Subsidiary—Phoenix Steel Corporation

40th YEAR
Spencer White & Prentis INC.
FOUNDATIONS
UNDERPINNING
PILING
CATALOGUE ON REQUEST
10 E 40th ST., NEW YORK 16
DETROIT 2033 PARK AVE
CHICAGO 22) NORTH LaSALLE ST
WASHINGTON, D. C. TOWER BLDG.
PITTSBURGH EMPIRE BLDG.

TOWNSEND
gives you the complete package—the correct fastener plus field service



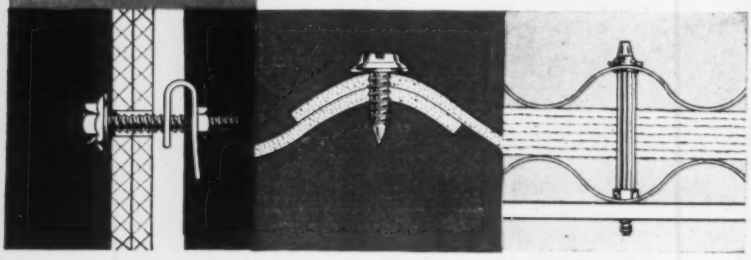
Townsend Tuff Tite fasteners are specifically designed for use with each type of construction material and method of application. This enables Townsend engineers to give you impartial assistance in selecting the right fastener for your particular job.

The wide variety of Tuff Tite fasteners gives you the advantage of leakproof construction for crown and valley fastening of all types of roofing and siding, side lap fastening for all materials, screw and bolt systems for asbestos and tapping studs* for curtain wall construction.

Each fastener in the Tuff Tite family is made with an integral head and washer and is supplied with an assembled neoprene washer, which is trapped and controlled by the undercut in the head when the fastener is tightened. The result—positive leakproof construction and resistance to vibration.

It will pay you to take advantage of the lower installed cost and reduced maintenance made possible by use of Townsend Tuff Tite fasteners. Write for Bulletin TL-149 to Engineered Fasteners Division, P. O. Box 71-L, Ellwood City, Pennsylvania.

*Patent pending



Townsend Company

ESTABLISHED 1816

Engineered Fasteners Division

ELLWOOD CITY • PENNSYLVANIA

Cherry Rivet Division • Santa Ana, California

In Canada: Parmenter & Bulloch Manufacturing Company, Limited, Gananoque, Ontario

▲ **Fred S. Macomber**, 4704 E. McKinley Ave., Fresno 2, Calif., CA $1,894,000, Fresno Air Terminal, concourse bldg., fire station, admin. and tower, maintenance, hangar-apron work, roads, at airport, FRESNO, CALIF. City, City Hall, 2326 Fresno St., Fresno, Calif. Bids July 28. CD 8/18, under LB.

BUILDINGS—LB & CA

▲ **The Austin Co.**, 16112 Euclid Ave., Cleveland, O., CA Over $1,500,000, 1 story, part bsmt., 190 x 450 ft. SCIENTIFIC RESEARCH LABORATORY, SEATTLE, WASH. Boeing Airplane Co., 7755 E. Marginal Way, Seattle 4, Wash. CD 7/1.

▲ **Marjan Development, Inc.**, 9562 Ball Rd., Anaheim, Calif., CA $1,418,500, 122 stucco DWELLINGS, Tract 3371, ANAHEIM, CALIF. Tyee Park Estates, 9562 Ball Rd., Anaheim, Calif.

▲ **Flowers & Shirley & Robert C. Allen**, 2150 Princeton Ave., Los Angeles 26, Calif., CA $1,712,800, JUNIOR HIGH SCHOOL BLDGS., PARAMOUNT, CALIF. Paramount Unified School Dist., 15110 South California Ave., Paramount, Calif. Bids Aug. 11. CD 7/22.

▲ **Pardee Bldg. Corp.**, 10639 Santa Monica Blvd., Los Angeles, Calif., CA $1,302,720, 131 DWELLINGS, Clairmont Mesa Tract No. 6, SAN DIEGO, CALIF. Hoyt S. Pardee, 10639 Santa Monica Blvd., Los Angeles, Calif.

▲ **Barnhart Constr. Co.**, 785 Walsh Ave., Santa Clara, Calif., CA $1,450,281, Pioneer HIGH SCHOOL, Kooser Ave., SAN JOSE, CALIF. San Jose Unif. School Dist., 408 Almaden Ave., San Jose, Calif. Bids Aug. 4. CD 8/12, under LB.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
September 16 Ontario

HEAVY CONSTRUCTION—LB & CA

▲ **ONTARIO**—Dpt. Hys., Parliament Bldg., Toronto. Bids opened 8/12.

Hacquoil Constr. Ltd., 1408 Brown St., Fort William, Ont., LB $1,621,592, grading, culverts, granular base, 9 mi. Trans-Canada Hy. 17 from Longbow Corner easterly (Contract 59-223), Longbow Corner. CD 7/30.

BUILDINGS—LB & CA

▲ **Christensen & Macdonald Ltd.**, 612 Tegler Bldg., Edmonton, Alta., CA $1,300,000, rein.-con. RACING STABLES, Edmonton Exhibition grounds, EDMONTON, ALTA. Edmonton Exhibition Assn. Ltd., Edmonton, Alta. Bids June 30, awarded Aug. 12. CD 6/25.

▲ **Peter Leitch Constr. Ltd.**, 170 Scott St., Winnipeg, Man., CA $1,350,000, 1 story, concrete HARDWARE, GROCERY AND DRYGOODS WAREHOUSE, ST. JAMES, MAN. Federated Co-Operatives Ltd., 230 Princess St., Winnipeg, Man. Smith, Carter, Searlex Assocs., 65 Dewdney St., Winnipeg, Man., archts. Awarded Aug. 12.

▲ **Pigott Constr. Co., Ltd.**, 1250 Bay St., Toronto, Ont. CA Est. $3,000,000, 7 story, bsmnt., 46 x 228 ft. HOSPITAL ADDN., TORONTO, ONT. St. Joseph's Hospital, 1830 Queen St. W., Toronto, Ont. Marani, Morris & Allan 1250 Bay St., Toronto, Ont., archts. A. M. Lount & Assocs., 749 Yonge St., Toronto, Ont., engrs.

▲ **Sirotek Constr. Ltd.**, 1305 Baseline Rd., Ottawa, Ont., CA $1,622,000, steel, brick BUS DEPOT and HEADQUARTERS BLDG., OTTAWA, ONT. Ottawa Transportation Comn., Bank St. and Kent Ave., Ottawa, Ont. Bids July 24, awarded July 30. CD 8/3, under LB.

▲ **Anglin-Norcross Quebec Ltd.**, 892 Sherbrooke St. W., Montreal, Que., CA Est. $20,000,000, 31 story OFFICE, southeast corner Dorchester Blvd. W. and University Ave., MONTREAL, QUE. Dorchester-University Holdings Ltd., c/o The Royal Trust Co., 105 St. James St., Montreal, Que. D'Allemange & Barbacki, 3180 Van Horne Ave., Montreal, Que. engrs. CD 2/10.

LATIN AMERICA

HEAVY CONSTRUCTION—BA

▲ **Argentine**—POWER LINE—BA 10/1—Power Dpt. of Province of Buenos Aires, Direccion de Energia, La Plata, Buenos Aires, 110 mi. 62 kv overhead tension power line between Bahia Blanca and city of Pigue, Buenos Aires. $1,400,000.

U. S. POSSESSIONS

HEAVY CONSTRUCTION—BA

▲† **CANAL ZONE**—BA 12/2—Panama Canal Co., Balboa Heights.

Superstructure of Balboa Bridge over Panama Canal. $12,000,000. Swerdrup & Parcel, Inc., 915 Olive St., St. Louis, Mo., U.S.A., engr. CD 8/5.

AMERICANS ABROAD

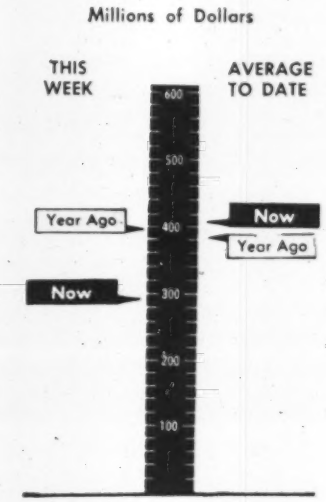
HEAVY CONSTRUCTION—LB & CA

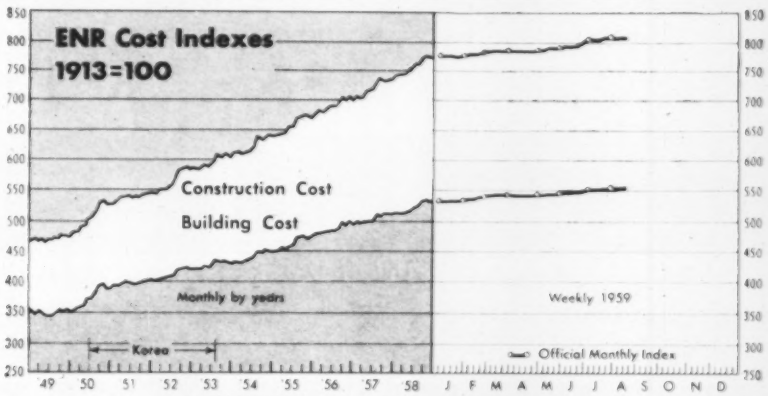
▲ **Brown-Pomeroy-Hawaiian (Brown Engineers International, Inc., Pomeroy Constructors, Inc. and Hawaiian Dredging & Constr. Co. Ltd. International)** 60 W. 55th St., New York 19, N. Y., CA Est. $20,000,000. Port of Dammian Arabian Gulf, SAUDI ARABIA. Ministry of Communications, Kingdom of Saudi Arabia, Riyadh, Saudi Arabia. Brown Engineers, 60 W. 55th St., New York, N. Y., U.S.A., consult. engrs.

(Proposal Advertisement see pp 81 to 83)

Construction Scoreboard

CONTRACTS ...





CURRENT COST INDEXES

ENR INDEXES (1913=100), 20-cities' average	Week of Aug 20 1959	% Change from July 23 1959	% Change from Aug 21 1958
Construction Cost	812.17	−0.06	+5.06
Building Cost	556.01	+0.08	+4.06

*To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.856.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

AMOUNT OF CONTRACTS LET

	This Week millions	Cum. 35 wks 1959	Chge '58-'59 %
All Heavy Constr.	$293.0	$14,325.1	+ 4
By Ownership			
PRIVATE	140.2	6,973.4	+22
PUBLIC	152.8	7,351.7	− 8
State & Municipal	131.2	5,273.4	− 8
Federal	21.6	2,078.3	− 8
By Type of Work			
PUBLIC			
Waterworks	4.6	295.3	+31
Sewerage	12.4	455.5	+ 3
Bridges*	4.8	547.0	+14
Highways	61.8	2,137.0	− 8
Earthworks, Dams & Waterways	15.9	654.0	−16
Buildings:			
Excl. Housing	30.7	1,824.3	− 1
Housing	2.9	468.5	−48
Unclassified	19.7	977.6	− 9
PRIVATE			
Buildings			
Mass Housing	46.5	3,150.2	+15
Commercial	37.8	1,571.5	+16
Industrial	22.0	1,886.0	+46
Unclassified	33.9	358.2	+13

*Includes private bridges

NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

CAPITAL . . .

New Capital For Construction	Week of Aug. 20 millions	Cum. 34 wks 1959	Chge '58-'59 %
Corporate Securities	$ 35.7	$2,484.8	−33
State and Municipal:			
All Except Housing	132.9	4,196.1	− 3
Housing	....	75.2	+122
Federal Loans	2.3	94.3	−32
Federal Aid	....	2,858.0	....
Total Nonfederal	$170.9	$9,708.4	+19
Federal Appropriations:			
Projects in U. S.	$	$ 345.5	−59
Out-side U. S.	....	4.4	−30
Total New Capital	$170.9	$10,058.3	+11

BACKLOG OF PROPOSED HEAVY CONSTRUCTION

	July 1959 (millions)	Percent Change from last Month	Year
Total U. S. (ENR reported)	$113,769	−0.3	+2.0
By Ownership—			
Private	50,014	+0.4	+4.3
State & Municipal	50,436	−0.7	0
Federal	13,319	−1.5	+1.2
By Type of Work—			
Waterworks	2,667	−1.0	+0.4
Sewerage	3,594	−0.2	+5.3
Bridges	3,362	−0.2	+0.3
Highways	12,576	−1.8	−4.5
Earthwork, Waterways	11,582	−1.0	−0.8
Public Buildings	20,494	−0.5	+3.2
Industrial Buildings	16,981	+0.5	+2.7
Commercial Buildings	22,552	+0.4	+4.7
Unclassified, Private	10,481†	+0.4	+6.1
Unclassified, Public	9,479	−0.9	−0.1

†Includes private bridges, $91 million

FLOW OF NEW PROJECTS INTO THE BACKLOG

	1959 July (millions)	1959 7-months (millions)	Percent Change from '58 July	Year Cum.
Total U. S. (ENR reported)	$1,186	$10,894	+25.6	+19.8
By Ownership—				
Private	837	6,039	+91.6	+47.4
State & Municipal	302	4,046	−15.4	− 4.6
Federal	47	809	−68.8	+ 7.0
By Type of Work—				
Waterworks	17	245	−12.0	−34.8
Sewerage	46	352	+43.8	− 4.8
Bridges	4	248	−43.9	− 3.4
Highways	18	996	−71.9	− 8.2
Earthwork, Waterways	9	126	−55.1	−15.3
Public Buildings	204	2,264	−41.1	+ 7.1
Industrial Buildings	260	1,914	+300.9	+156.9
Commercial: Mass Housing	244	1,806	+25.4	+36.4
Other Building	266	1,598	+61.2	−11.8
Unclassified, Private	68*	720**	+435.9	+231.8
Unclassified, Public	50	624	+192.6	− 3.7

*Includes private bridges, $0.9 million
**Includes private bridges, $9.1 million

FLOW OF PROJECTS OUT OF THE BACKLOG INTO CONTRACTS

Total U. S. (ENR reported)	$1,153	$6,436	− 7.0	+ 0.1
By Ownership—				
Private	407	2,191	+79.8	+22.0
State and Municipal	518	2,831	−19.2	−15.2
Federal	228	1,414	−38.8	+ 9.2

Steel: 30-Day Supply Left

- **That's the general outlook for construction. But some jobs are halted, and big new starts will be delayed.**
- **However, if the strike continues much longer, most of the industry will be in trouble. Some manufacturers are already hurting.**

The construction industry generally can take another 30 days of strike in the steel industry.

There may be some jobs stopped or delayed, but they are the exception. In fact, many structural steel fabricators, contractors and some producers of building supplies told ENR reporters they can run another two to three months without being seriously pinched.

Many construction equipment manufacturers show signs of running out. Most are reluctant to reveal their inventory position, but those who commented were on the pessimistic side. A couple of producers already are running at reduced speed—one at 50% to 60% of normal.

But should the strike outlast the huge inventories laid in, the repercussions will be sharp. Estimates by equipment and materials suppliers of the time that would be needed to regain full production ran from two months to more than five. Most of them, however, expect the strike to end before they run out.

In many cases, contractors and fabricators apparently underestimated the extent of their own inventories and those of suppliers.

In late June, some of them had expected to be severely affected within a month after the start of a strike (ENR July 2, p. 74). Now a reappraisal indicates they can go another month without being hurt. Some estimate they could get by for another two months.

Some unusual situations have developed: in Dallas, a warehouse is placing advertisements in newspapers calling for business, because "we have steel for three to four months."

Similar good supplies in other parts of the country bear out a check of members by the American Institute of Steel Construction. It found that steel fabricators held enough material for three months (ENR Aug. 6, p. 23).

In addition to inventories held by contractors and fabricators, a big supply still remains in warehouses. This source will fill in spot shortages in contractor and fabricator inventories, and will allow some contractors to start new jobs not covered by their own inventories.

New starts on exceptionally big jobs are expected to be delayed. In most regions contracts are being written with the starting date contingent upon the date of a steel-strike settlement.

Extent of warehouse supplies of all steel types was reported last week as 3.3 million tons by the American Steel Warehouse Association. The warehouses went into the strike with 3.7 million tons.

In tightest supply are galvanized sheet, metal deck, plate and wide flange beams, contractors and fabricators report. These products, however, were in tight supply even before the start of the strike.

In some areas, the few mills not struck are taking up the slack. In others, foreign steel is filling in when domestic products are unavailable or require extensive shopping. In the latter case, it's quicker to obtain foreign steel.

Use of foreign steel is far from common right now. Only Texas is making big use of imports. Many contractors and fabricators say they would prefer not to use it, but admit that if things get tough enough, it may be their only alternative.

There is little sign that the industry is turning to other materials. Some contractors are looking into the possibility of switching to concrete construction, but the feeling is that such a move is not yet necessary.

Some contractors report higher prices for domestic and foreign steel. Foreign steel is generally above pre-strike price levels, but still below warehouse prices for domestic steel.

Manufacturers of building materials appear to be hard hit. But some, like American Culvert Co., of Oakland, Calif., have enough plate to last through October.

A Chicago metal products company says it has laid off 80 to 100 workers in five midwest plants. This could delay highway building programs in Illinois, Indiana and Michigan.

And in Milwaukee, A. O. Smith Corp. shut down its pipe mill because it couldn't get heavy steel plate for line pipe used in the petroleum industry.

A Detroit manufacturer of curtain walls and metal doors and windows also is in a poor inventory condition. The company will be crippled early in September if the strike should continue.

Work stoppages and delays are reported in widely scattered areas. More may be added if the strike continues.

Among construction jobs stalled is a 20-story building in Los Angeles being built by Tishman Realty & Construction Company, of New York City. Six floors of steel are up.

In San Francisco, some delay in fabrication of steel for the Benicia-Martinez Bridge is reported. Also held up in the same area are a county administration building and part of a high school job. In Buffalo, N. Y., a bridge job is halted.

Despite the relatively optimistic sentiments expressed by construction men, spokesmen for the Eisenhower Administration say the construction industry is most vulnerable to a continuation of the strike.

Until now, the secondary effects have been moderate; about 100,000 persons were laid off as of July 31, the Labor Department reports. Most of these are in construction, brick refractories, transportation and coal mining.

In principal steel-producing and consuming centers, 11,300 construction workers are off the job. Most were working on projects at steel plants.

The Labor Department feels that additional secondary layoffs in August will be relatively small, but expects September will bring "sizable" layoffs in construction, metal working, mining.

But as unemployment swells and materials grow short, pressures are mounting on both the Administration and the management-labor negotiators. The facts reported by Labor Secretary James P. Mitchell might be counted as a form of pressure. However, Mr. Mitchell apparently has ruled out use of Taft-Hartley injunctions for at least a month as a means to end the strike.

(*B&F continued p. 74*)

Normal shoot and shovel job turned over to Michigan Scrapers

19 yd pans loaded in shale-sandstone by ripper-dozer. Load time: 30 seconds

Try digging your heel into the tight shale-sandstone terrain on this 11-mile Highway 54 relocation job east of Owensboro, Kentucky—and you'd say the soil was tough enough to shoot. But a cost-conscious dirtmover—Perrin Construction Co of Cynthiana, Ky—decided to tear it up with ripper-mounted dozers, then load with high-powered scrapers. A gamble? Perhaps. But Perrin held a pair of aces—two 262 hp, 19 yd Model 210 Michigan Scrapers.

14 pay yards per trip

First step in moving the rocky material was for the ripper-equipped 200 hp dozer to slice through the borrow area. Only one or two passes were needed to break the shale-sandstone sufficiently for the Michigans—which were then pusher-loaded. Load times, with 200 hp pusher, ran from 30 to 50 seconds. Loads weighed out at 14 pay yards. Cycles were fast . . . so fast, in fact, that on hauls of less than 1,000 feet, it took both the big pusher and a 141 hp tractor to both rip and keep up with the two Model 210's. The smaller pusher, too, needed less than a minute to heap the Michigans.

14 trips per hour

In a typical three-shift period, over typical 2,000 foot one-way hauls, the two Michigans moved 10,000 pay yards. Each machine chalked up about 200 pay yards per 50-minute hour—making 14 to 15 trips over the 4000 ft cycle. Haul speeds averaged 20 mph.

Much less tire wear

According to Mr. Perrin, "The Michigans had no trouble picking up the shale. They have lots of power and payload capacity. We especially like their torque converter drive for this rough material work. It reduces wheel spin and tire wear. With ordinary scrapers, you know, an impatient operator could grind up the drive tires within a month."

Demonstrations now available

We'd welcome the opportunity to show *you* how Michigan's power shift-torque converter drive, high ratio of hp to weight, and its high capacity (three sizes: 10½, 19, 29 yards) all can combine to boost *your* production and efficiency. Call us for a demonstration—*soon*—before you bid your next job.

Michigan is a registered trademark of

CLARK EQUIPMENT COMPANY
Construction Machinery Division

2401 Pipestone Road
Benton Harbor 5, Michigan

In Canada:
Canadian Clark, Ltd.,
St. Thomas, Ontario

CLARK EQUIPMENT

Public Works Trend Is Down

Declines in public housing, nonresidential building, earthwork-dams-waterways drag awards down 8%

The postwar boom in public works contracts is starting to fade.

For the first seven months this year, state and local awards showed a 6% decline from 1958's all-time high (ENR Aug. 6, p. 104). This week the gap widened to 8%.

Five major types of state and local public works are running ahead of last year's award volume: waterworks, sewerage, bridges, airports and tunnels and subways (see table).

But only the first three categories are still growing, according to the annual rate of awards as measured by the 12-month moving total ending July 31, 1959.

Declines in other key public works markets are chiefly responsible for reversing the upward trend.

Public nonresidential building, public housing and earthwork-dams-waterways trail last year's volume by 12% to 53%.

Moreover, their annual rates have dropped almost as sharply from recent peaks.

Now, in addition to these steep declines in the public works markets, there is the threat of a cutback in the Interstate program.

Impact of such a cutback would have serious effects on contractors and suppliers to the construction industry. It would also take some of the glow from the new orders forecast by construction machinery manufacturers and possibly have an adverse effect on their earnings during the rest of this year (ENR Aug. 20, p. 110).

The highway construction market has already weakened because of the financing debacle in Congress. The decline of 1% in highway awards at the end of the first seven months now is opened to 8% this week as awards have dropped precipitously.

The decline in new proposed public works, which started about three years ago, shows that new plans are no longer rising faster than contracts. And the current sharp decline in new proposed work has pulled volume well below the contracting rate.

That means pressure for future construction is diminishing fast. The new downtrend in awards may continue for two or more years. Reason: It takes that long for most public works projects to move through the planning stage into contract. Thus a future upturn in proposed work would take almost two years to halt the slide in awards.

Since the end of World War II, the climb in public works contract awards has shown consistent growth. There have been periods when the volume of contracts leveled out and also dipped. Then awards would start a new climb, with a consistent trend up through the years, backed by a rising flow of work into the state and municipal backlog of proposals.

Now the inventory of proposals is down, and contracts over the long term will follow.

State, Local Contract Trends by Work Type

(in millions of dollars)

Type of Construction	First 7 Months 1959	First 7 Months 1958	Chg. %	How the 12 Months Total as of 7/59 Compares with: 12 Mos. Peak (12th mo.) %	Apr. '59* %
State & Municipal-Total	$1,732.8	$5,030.0	− 6	− 5	(4.59) − 5
These are ABOVE '58					
Waterworks	268.4	199.2	+ 35	− 9	(5.57) + 2
Sewerage	404.0	363.4	+ 11		(7.59) + 2
Bridges	479.6	423.2	+ 13	− 1	(10.58) + 1
Airports	81.4	79.8	+ 2	−10	(5.59) −10
Tunnels & Subways	57.2	24.9	+130	− 5	(5.59) − 5
These are BELOW '58					
Highways	1,932.2	1,944.4	− 1	− 2	(2.59) − 2
Earthw'k-Dams-Waterways	146.8	313.2	− 53	−49	(7.58) −41
Building (excl. housing)	1,121.1	1,268.4	− 12	−10	(7.58) − 9
Public Housing, Total	156.5	299.7	− 48		
Slum Clearance	102.7	203.4	− 50	−34	(12.58) −26
Other	53.8	96.3	− 44	−36	(9.58) −26
Other "Unclassified"	85.6	113.8	− 25	.....	.....

*Peak in 12-months moving total of all state and municipal contracts

Too Much, Too Little

Delaware's short of money, but bridge rolls in it

Delaware agencies are simultaneously encountering feast and famine.

On one hand, the Delaware Memorial Bridge near Wilmington is making too much money. But state agencies are so short of funds for construction programs that projects under way may be halted and new starts delayed. What's more, the legislature adjourned until January without authorizing $25 million in bonds. Now 6,000 to 9,000 men employed on public works projects are threatened with layoff.

The bridge, only eight years old, has already earned about $5.5 million more than its bonded indebtedness, with 61% of the bonds paid off. This embarrassment of riches hurts more because under authorizing legislation, full debt retirement isn't required until 1978. To forestall the day when the bridge will become free, tolls have been slashed, but even this move won't prevent an early "mortgage burning."

Annual bridge maintenance costs of $1 million will have to be paid out of the state Treasury when the bridge becomes free. State officials want to avoid this at all costs. There is even talk of selling $6 million more in bonds to build new approaches and supporting facilities, which would aid in preventing the bridge from becoming toll-free in a hurry.

But while the Delaware Interstate Highway Division (administrator of the bridge) is rolling in money, other state agencies are strapped. An omnibus bond bill for $25 million failed to pass the legislature when political maneuvers forced the adjournment.

However, there are few who believe that the lawmakers will stick with that decision. Pressure from contractors demanding money due them and subsequent unemployment in public works construction are expected to be too great to withstand.

The bond bill proposed includes $10.2 million for school and university construction, $14 million for state highways and county roads and $350,000 for beach-erosion control.

Intensifying the state fund shortage is the financial shape of the Interstate highway program. Delaware is banking on a $6-million federal payment for roads, and now this is expected to be delayed until Congress resolves the financial problems of the Trust Fund. Delaware has already halted contracting for federal-aid roads.

(B&F continued p. 76)

6 YARDS PER PASS

A seventeen yard tandem-axle truck loaded in 90 seconds!

A twelve-yard semi heaped in 60 seconds!

Over 500 yards loaded EVERY HOUR by just one Tractor Shovel

Someone's dream? Not any more! It's been standard practice on general contractor J. R. Cianchette's jobs near Pittsfield, Maine, for almost a year now. That's when his big *6 yard* Model 375A Michigan Tractor Shovel went to work.

Cianchette's problem up until then had been a common one: "How to hold down loading costs and still meet increased production demands."

At first, purchase of more of the fastest rubber-tired 2 to 2¼ Tractor Shovels available seemed the best solution. Then, local Michigan distributor, Portland Tractor Co., showed Company President J. R. Cianchette the new 6 yard Michigan. When Cianchette saw the big rig in action, he bought!

Michigan output totals 8,000 yards per 16 hour day

Today, the big Michigan truck-loads and plant-feeds over 500 yards of sand and stone *every hour*. "Despite its size, our operators would rather run this big Tractor Shovel than any other," says Mr. Cianchette. "Like all Michigans, it's well-balanced, easy maneuvering, easy operating. It has the right weight and power to handle its bucket. Its smooth operation keeps operator efficiency high all day—even though the one operator alone loads as much sand and stone as can three men on three 2 yard rubber-tired Tractor Shovels."

Excavates sub-base, loads concrete, does many similar scattered odd jobs

Such high production gives the 6-yard Michigan extra time to do all kinds of odd jobs on Cianchette's bridge, road, housing development and airport contracts. For example, it loads out broken concrete runway pavement. It has excavated for new and deeper runway and apron subbases. It backfills around new foundations, footings and slabs. Tows disabled vehicles to the service shop. Unloads trucked-in expansion tanks, reinforcing steel, metal culverts, concrete pipe. Grades haul roads on the work sites. Even loads small five and six-yard trucks with bank-run dirt . . . *needs only one pass (20 to 30 seconds) per truck.*

In all, Mr. Cianchette figures his big new Michigan has cut loading costs "more than 50%." *Perhaps 6 yard "bites" can do the same for you!* Talk it over with your Michigan Distributor before planning your next job.

Michigan is a registered trade-mark of

CLARK EQUIPMENT COMPANY

Construction Machinery Division

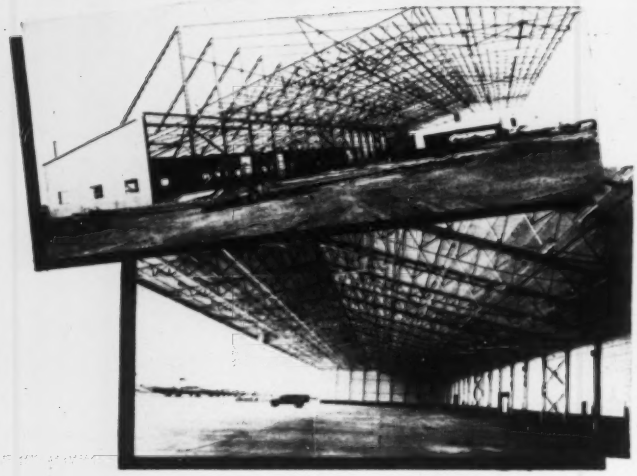
CLARK® EQUIPMENT

2401 Pipestone Road
Benton Harbor 2, Michigan

In Canada:
Canadian Clark, Ltd.
St. Thomas, Ontario

the ERWIN-NEWMAN Suspended Cantilever HANGAR

Engineered for the FUTURE . . .



UNOBSTRUCTED CLEAR SPAN SPACE!

EXPANDABLE . . .

IN HEIGHT • IN LENGTH • IN DEPTH

ERWIN-NEWMAN hangars are built with an expandable future in mind. The length can be enlarged and still have clear span space up to several hundred or several thousand feet. Vertical clearance can be increased, in the future, by adding tail gates at any number of points across the front.

Our years of experience in design and construction make it imperative you consult with us when you plan a hangar of any size (no obligation of course).

Erwin • Newman Co.

P. O. BOX 1308 — DESIGNERS AND CONSTRUCTORS U. S. Patent No. 2,687,102 — HOUSTON, TEXAS

Due to certain patent infringements it is necessary to publish this

IMPORTANT PATENT NOTICE

The Erwin-Newman Suspended Cantilever Hangars are covered by United States Patent No. 2,687,102, and similar foreign patents issued to us and under which we hold exclusive rights. We have not (at this writing) issued any licenses of other authorization for the design, engineering, construction or use of these patented hangars. The Erwin-Newman Company must and will, protect its rights under these patents against infringements.

Up and Down

Big consultants lose, smaller ones gain

Hardest-hit by the drop in consulting engineering work during 1958 were the larger consultants—those handling over $1 million in volume.

The over-$1 million firms had a 26% drop in business between 1957 and 1958, while consultants in the $100,000-$500,000 and $500,000-$1 million categories scored moderate gains. This is shown by ENR's annual analysis of all firms doing a minimum of $100,000 in new business last year (estimated construction cost of proposed projects).

Consulting organizations that put $1 million or more in new jobs on the books last year are 5% fewer in number, handled 7% fewer projects and did 26% less business than in 1957.

By contrast, those in the $500,000-$1-million class are 6% more numerous, handled 9% more projects and did 8% more business in 1958 than in 1957.

The $100,000-$500,000 group showed a 3% gain in number to 579, a new high. There was only a fractional increase in new projects. However, a surprising 10% increase in new business brought the volume for this group to a record $147.4 million.

Last year, the over-$1-million consultants got 93.4% of the $4.9 billion in work booked by firms covered in the ENR analysis. In boom 1956, these consultants got 96.5% of the work. Less design work for highways and industrial buildings accounts for part of the decline.

In contrast, the middle-sized group—$500,000 to $1 million—upped their share to 3.6% from 2% in 1956. This gives them a new record volume of $180.2 million. Similarly, the amount of new work garnered by the $100,000-$500,000 group rose to 3% in 1958 from 1.5% in 1956.

The picture is the same when the totals are broken down by type of work. There were fewer firms last year among the biggest consultants in every type of work except buildings-other-than-industrial. Only sewerage and airport projects provided the big consulting firms with more work in 1958 than the year before.

The smaller firms scored sizable gains in these types of work and also increased their business in other categories. Medium-sized firms added 38% in waterworks projects, tripled their earthwork-dams-waterways jobs and added 3% in unclassified construction (excluding building) and 1% in building (other than industrial) design work.

(Continued p. 79)

Replaces two crawlers and a compactor with one Michigan... ups output 50%...

Cuts compaction costs $15 per hour

By buying a machine with a "built-in bonus," a midwest roadbuilder is saving at least $15 per operating hour.

Tri-County Trucking Company of Detroit subbed the sand sub-base and all aggregate haul—about 500,000 yards—from Holloway Construction Co, Livonia, Mich, on a 9-mile leg of new Interstate Highway 23 north of Toledo. The sub-contractor knew he'd be pushing a lot of sand fill, so he got to thinking. Sand is hard on crawler tracks—so why not use a heavy rubber-tired dozer?

The unit chosen was a 262 hp, 51,000 lb Michigan Model 280 Dozer. Each 26.5-25 tire was hydroflated with calcium chloride solution—1,750 lbs per tire. Rig was put to work two shifts per day, 6 days per week.

It soon proved fast enough and mobile enough to easily spread the sand delivered by 35 ten to seventeen-yard trucks and semi-trailers. Its output *averaged* 3,000 bank yards (per government cross-section) per 10-hour shift. (In contrast, a 35,000 lb crawler, used elsewhere on the 9 mile job, regularly spread 2,000 yards per shift. Completed lifts in both cases averaged 9 to 12 inches deep.) But there was an unexpected bonus, too . . .

97% Proctor in 2 to 4 passes

The Michigan, working alone, effectively met compaction specs of 95% Proctor. In fact, government tests showed 97% average compaction, after only two to four passes, *including* passes made to spread. No specialized compaction equipment was needed. Thus, says Boyce Grubb, company treasurer, "we eliminated expected use of a tractor-drawn 25 ton roller which, we estimate would have cost us at least $15 per operating hour."

There were other savings too!

1 Michigan's low-pressure tires and rear wheel steer did not tear up fill as other dozers often do!

2 The Michigan alone graded to within a few inches of final specs. According to Supt Tom Quaine, the fill thus required only touchup with a grader.

3 Michigan's 28 mph "go-anywhere" mobility enabled it to move from one end of the grade to another, 9 miles, in 30 minutes or less.

4 Tires, rolling over the sand, instead of grinding in it, saved much of the repair and greasing time needed with each crawler, according to Mr. Quaine.

You can check these savings first hand on *your* job. Just call your Michigan Distributor for a no-obligation demonstration. Four size Michigan Dozers to choose from: 165, 262, 375, or 600 hp.

Michigan is the registered trademark of

CLARK EQUIPMENT COMPANY
Construction Machinery Division

CLARK® EQUIPMENT

2401 Pipestone Road
Benton Harbor 4, Michigan

In Canada:
Canadian Clark, Ltd.
St. Thomas, Ontario

NEW-

Tow it into place

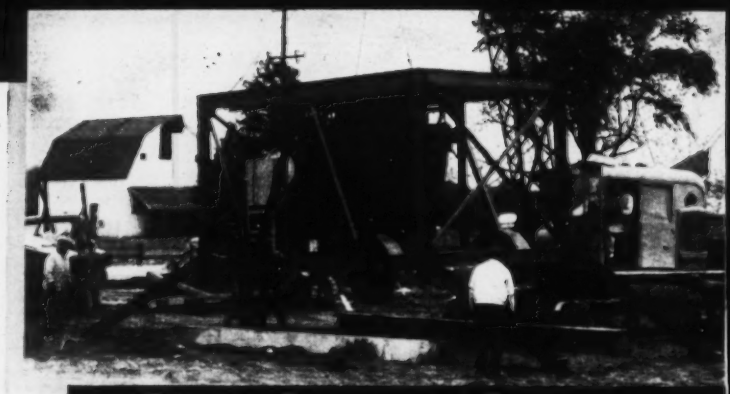
. . . Weir Contracting Co. tows their Heltzel Unitized, Mobilized Batching plant from previous job site on its own transportation wheels . . .

Heltzel's new 100 and 150-ton, pushbutton batching plants are now *unitized* and *mobilized* for easier moving—for faster setup—for greater savings of time and money.

The new plant consists of two self-contained mobile sections; hopper section and batcher section (including scales) with new fold-up supporting columns. Both sections have built-in wheel assemblies and towing tongues—ready to roll.

Weir Contracting Company of Detroit, Michigan reports: "... Our first job was in Greenbrier Meadows Subdivision, Livonia, Michigan. After the plant arrived on the site it was ready for operation in a very few hours. We found that the speed of batching will give two complete batches in thirteen seconds. On subsequent work, the plant was dismantled and ready for transportation in two hours and towed by small, single axle dump trucks to the new location. We have found that the built-in transportation wheels save us over $100.00 a move because of not having to rent trailers."

For complete data and specifications contact your nearby Heltzel representative—or write us direct.



Set it up fast

. . . batcher section is raised into position, hinged columns are lowered and bolted in place . . .

. . . bin section is positioned and bolted on top of batcher section.

Start batching

In just a few hours this full size, high capacity, pushbutton paving plant is ready to operate!

THE HELTZEL STEEL FORM AND IRON COMPANY
WARREN, OHIO

(Continued from p. 76)

The $100,000-$500,000 consultants gained 60% in the latter category and 84% in earthwork-dams-waterway work. Their unclassified projects rose 27% in volume.

The ENR analysis shows the relative importance to consultants of several types of building design work.

The four top categories of 1958 new work, in order of dollar volume, were:

- Private industrial building, $786.6 million (down 50% from 1957).
- Housing, $428.5 million.
- Schools, $352.6 million.
- Public industrial and military, $211.4 million.

Hawaiian Cement Fight Winds Up in a Draw

Hawaii's "battle of the cement plants" has ended in a partial victory for both of the battling industrialists—Henry J. Kaiser, 77, and Walter F. Dillingham, 74.

Mr. Kaiser will build the $13.5-million plant he wants for his Permanente Cement Co., but not on the site he originally chose. Mr. Dillingham has protected his proposed-resort site from encroachment by the Kaiser plant, but he hasn't shut Kaiser out of the islands and competition with his newly formed Hawaiian Cement Co.

Mr. Kaiser moved to a second site after Dillingham interests successfully blocked his effort to get the original site zoned for industry (ENR June 18, p. 296). On the second site, a few miles from the first location on Oahu Island, he will build a plant with a capacity of 1.7 million barrels of cement per year.

Bids have already been invited for eight silos and a packing plant. Other parts of the plant will be bid soon.

Meanwhile, Mr. Dillingham already has under construction a cement plant with an annual capacity of 1 million barrels. Ironically, it is being built with Permanente cement, the only cement now available in Hawaii.

Contractor to Build Plants To Order, Then Lease Them

The Tishman Realty and Construction Co., New York, has formed a subsidiary that will build and equip factories to order and, while retaining title, lease the structure to the client.

The subsidiary, Tishman Equipment Leasing, Inc., will also lease roadbuilding machines, trucks, tractors, trailers and buses, materials handling machines, and aircraft, electronic and electrical equipment.

New Way To Finish CONCRETE CEILINGS

More and more building specifications require finely finished concrete ceilings. Because of this new requirement, Stow Manufacturing Company has developed the Stow CG Ceiling Grinder—a special machine designed to grind off form marks and fins, cut off nails, and smooth the entire surface.

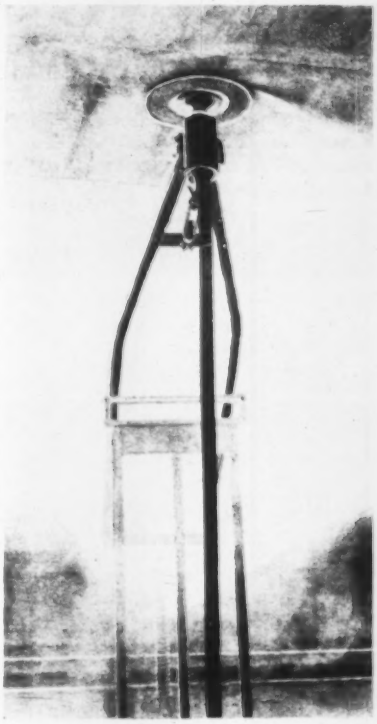
With this machine, one man can average 4,000 square feet per day. Simple to operate, it pushes along like a baby carriage.

To operate the Stow Ceiling Grinder: (A) The operator first sets the pivot arm at about a 45° angle. He then adjusts the grinding disc to proper height by lifting up on the rubber-gripped handle in the center. A ratchet arrangement automatically locks it in position at the height desired. (B) A slight pressure is exerted on the grinding disc by the spring and chain assembly at the opposite end of the pivot arm. (C) A turn-buckle is used to get the most desirable angle for grinding. For ordinary grinding, the disc should be flat against the ceiling, but for cutting nails and removing fins it works better at a slight angle. A spring arrangement is built into the bearing housing to support the grinding disc and absorb any shocks, thus preventing any gouging. Once the machine is adjusted, the operator just pushes it along.

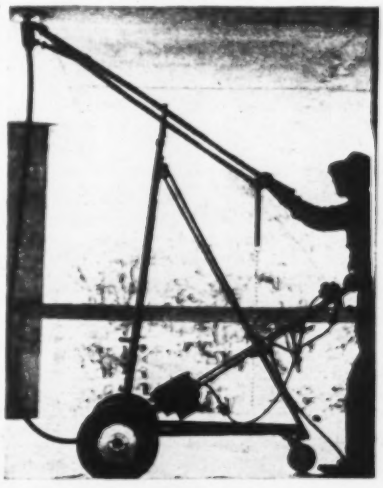
All three models have a 1 HP totally enclosed motor operating at 3450 RPM. The disc is a 9" Bayflex of cotton fibrous material with a silicon carbide abrasive bonded with resin.

Three models are available:

CG 10—for ceilings 8 to 10 ft. high
CG 13—for ceilings 10 to 13 ft. high
CG 16—for ceilings 13 to 16 ft. high



FOG OF CONCRETE DUST



STOW CG CEILING GRINDER

The Stow CG Ceiling Grinder can also be used for grinding walls. For this type work, employ the same flexible shaft as used on the ceilings, but attach a hand piece or anglehead to one end.

Stow Manufacturing Company also makes a complete line of portable electric flexible shaft grinders for both wet rubbing and dry grinding walls. For more information on the Stow CG Ceiling Grinder and a copy of Stow's Grinding Concrete pamphlet, which gives the proper speeds for both wet rubbing and dry grinding, contact your Stow distributor or send in the coupon below. Stow Manufacturing Company, Binghamton, N. Y., also makes a complete line of concrete vibrators, rotary trowels and screeds.

STOW MANUFACTURING CO.
19 Shear St., Binghamton, N. Y.
Please send me Bulletin 5713 on CG Ceiling Grinders.

Name ..... Title .....
Company .....
Street .....
City ..... State .....

AFL-CIO Mobilizes Its Forces

- **Executive Council says labor is the victim of a business conspiracy to weaken unions and turn back the clock of labor relations.**
- **Its Unity House stand means tougher sledding for construction's "Ten Commandments," Joint Industry Conference, wage freezes.**

The AFL-CIO warned last week that current efforts to clip the wings of organized labor will boomerang and make cooperative labor-management relations a thing of the past.

The federation's Executive Council, meeting at Unity House, Pa., took for the first time a clear and unequivocal stand on the basic issues in the big problems now on the labor scene.

It singled out the deadlock in steel, the bitter debate on labor reform legislation and use of the inflation issue as evidence of a business conspiracy to reverse the whole pattern of labor relations by regaining the right to set unilaterally the terms and conditions of employment for all workers, through a wholesale weakening of the trade union movement.

In an atmosphere markedly—and intentionally—devoid of inter-union feuds and friction, the AFL-CIO promised to present a strong and solid front and to fight back, both economically and politically, with all the resources at its command.

The direct effects on the construction industry are threefold:

- **The craft and industrial unions are prepared to bury the hatchet, at least temporarily,** and to continue to search within the framework of labor unity for solutions to the jurisdictional problems that have troubled the AFL-CIO since the merger.

In a fresh approach to the general problem of inter-union conflicts, a new committee has been formed to study seven areas of internal friction. Among them are the relative rights of building tradesmen and production workers to perform in-plant construction work; industrial union negotiation of labor contract clauses that limit industrial construction by contract; and mutually destructive secondary boycott and hot-cargo activity.

President Peter T. Schoemann of the plumbers union is a member of the new committee, whose chairman is Al Hayes (machinists). Other members are William Schnitzler (AFL-CIO secretary-treasurer), Joseph Beirne (communications workers) and Walter Reuther (president of the Industrial Union Department).

- **The legislative cleavage between contractors and building trades unions may kill the harmony essential to any substantial progress by the Construction Industry Joint Conference.**
- **Labor's view of its present struggle as one for something more than impotent survival will tend to create stronger resistance to any leveling off of wage rates and to any significant progress on the "Ten Commandment" program.**

"This is not good for the industry or the public," said one building tradesman at the Pocono meeting, "but how can we work constructively with those who are always working against us?"

Clearest indication of the depth of this widening breach between labor and management showed up at Unity House in labor's treatment of these three issues:

- **Steel strike**—The "struggle in steel is not solely, or even primarily, a question of economics," says the AFL-CIO. In the eyes of the federation, it is a "high powered," highly financed campaign developed and directed by "big business" to turn back "the clock of labor-management relations" under the "guise of fighting inflation." It is directed against all employees, the AFL-CIO says, and seeks to give management a "free rein" to take any action against any employee at whatever cost.

The federation expressed its determination "to make the steel strike the struggle of the whole American labor movement" and to mobilize all its strength to fight this "big business conspiracy."

- **Economics and inflation**—The AFL-CIO accuses the Administration and "its big business allies" of instigating a "politically motivated hysteria about inflation" to make a brain-washed public clamor for wage freezes, hard money, and cutbacks in public welfare programs, while management continues to enjoy "unconscionable tax loopholes," and "no freeze" on prices, profits, stock options and "retirement schemes."

Underneath this camouflage, the AFL-CIO says, is America's key economic problem—continued economic growth. The program proposed by the federation for promoting that growth includes continued increases in wages and salaries, price reductions in some industries, a reversal of the tight money policy, and the inclusion of labor, consumer and small business representative on the Federal Reserve Board. Implicit in the proposals is the argument that consumer purchasing power must be constantly increased in order to promote and support an expanding economy.

- **Labor legislation**—The AFL-CIO, continuing in the same vein, says "the issues in the legislative fight" have "nothing to do with corruption."

The federation accuses the National Association of Manufacturers and "its allies" of seeking, under a "smoke-screen" of corruption, "to tip the Taft-Hartley scales still more in favor of employers and against workers" and to make it impossible for unions to organize or to be effective at the bargaining table.

Although pessimistic about the outcome of the legislative debate, the AFL-CIO promises that labor "will not be deterred by anti-labor legislation, no matter how vicious it may be."

A logical byproduct of this is that the AFL-CIO is now re-evaluating its political action program. It has under consideration a number of specific, undisclosed proposals for making the program more effective.

In other areas of particular interest to the construction industry, the federation's Executive Council urged:

- Passage of a Federal Area Redevelopment Act to combat "the cancer of chronic unemployment."
- Retention of the $1-billion authorization and the Davis-Bacon prevailing wage provisions in the pending water pollution bill (H.R. 3610).
- Congressional authorization of the San Luis water development program in California—but with the 160-acre land ownership provisions of federal reclamation law applicable.

Labor in Brief . . .

• Union pay is higher—A worker on a union job receives, on the average, 8% more in pay than a comparable worker on a nonunion job. So says the AFL-CIO after comparing 1,041 union and nonunion wage scales in comparable occupations in the same industry and same region.

• Union wins vacation pay—A new labor contract between a West Virginia contractor and the United Construction Workers provides for vacation pay at the rate of $10 for each completed month of service, travel pay at regular rates for time in transit, and double time for work on six holidays and Sundays.

• Support for the Teamsters?—The Oregon AFL-CIO rejected during its annual convention a resolution urging the national AFL-CIO to issue a "come home" call to the teamsters union. Convention delegates sided 2 to 1 with the Resolutions Committee recommendation of "nonconcurrence."

• "Can't pay" is no excuse—A National Labor Relations Board trial examiner has ruled that union inability to pay the Brown-Olds penalty in a hiring hall case will not avoid imposition of the penalty. Place to raise questions of hardship is in compliance proceedings.

B.C. Ironworkers End Strike

One of the longest strikes of the year—a 52-day walkout by ironworkers in British Columbia—ended last week when the union accepted a 57-cent hourly increase under a new 27-month contract.

The union earlier rejected the same offer because of a dispute over a boundary line for travel purposes recommended by the Steel Erectors Association.

During the strike, the ironworkers sustained $19,000 in court fines for refusing to obey an injunction to complete the south pier of the second Narrows Bridge, still resting on temporary supports (ENR July 9, p. 120).

An estimated $100 million in British Columbian construction work, stalled by the strike, is now being resumed. But the work may soon be shut down again, this time by the International Brotherhood of Electrical Workers. IBEW rejected a 10-cent wage increase (it is seeking a 35-hour week, instead of 40 hours, with the same take-home pay) and will vote on a strike this week.

One other strike ended last week in Butte, Mont. Butte painters signed a two-year contract with the Painters, Paperhangers and Decorators Association to end a two-week walk-out.

Under another agreement with the eight-member Building and Construction Trades Council, the Butte painters were supposed to get an automatic raise whenever five members of the council got raises. This entitled them to a 17½-cent hourly raise in 1958, which was refused them last year and again this year. Under the new two-year pact, however, the painters get a 20-cent hourly raise this year and 10 cents more per hour next spring.

Pressure is being exerted to end several other strikes currently under way. The San Francisco Chamber of Commerce called upon teamsters, who are out on strike, and trucking concerns in the area to work toward an agreement because "the flow of goods vital to the city's living and economy is grinding to a halt."

Some 6,000 teamsters have been on strike in San Francisco since August 7. They rejected a $10-per-week raise each year for three years, and are seeking instead a $2.75-a-day package increase under a one-year pact. The teamsters have already delayed many construction projects in the area and are making their weight felt with mass-picketing at bridge entrances and industrial areas.

At Glen Canyon Dam, in Page, Ariz., a strike against Merritt-Chapman & Scott Corp. continues into its second month. Key to the dispute is a demand by workers for an additional $6 per day in subsistence pay.

Meanwhile, the unions may bring additional pressure upon M-C&S if they can get unemployment compensation for the strikers from the state. The unions claim members are eligible because M-C&S violated an existing agreement in refusing the subsistence pay.

And in Alaska efforts were still under way last week to mediate the long carpenters' dispute that has stalled construction on a statewide basis.

To Promote Training

International Training Fund grants $90,000

The trustees of the International Training Fund have given another $90,000 to local joint training committees to help pay the cost of training journeymen and apprentices in the plumbing and pipefitting industry. This brings to $733,000 the grand total of such awards since the fund was established.

The awards were made during the sixth annual National Apprentice Contest held by the plumbers union at Purdue University this month.

Purpose of the International Training Fund is to promote, strengthen and improve training programs for plumbers and pipefitters. It was created in 1956 under an agreement between the National Constructors Association and the United Association of Plumbers and Pipefitters, AFL-CIO. The fund is accumulated by employer contributions of two and a half cents an hour for each hour worked by members of the union employed under the agreement.

Only limitation on the use of the funds awarded to local training groups is that they go toward the payment of the cost of approved programs for training journeymen and apprentices in the UA trades. The awards to date have been used for such things as instructors' salaries, textbooks, welding machines and miscellaneous supplies and equipment, including plate steel, pipe, tongs, anvils, vises, electrodes, silver solder and copper tubes and fittings.

The fund is jointly administered by NCA and UA and supplements rather than supplants local financial support. Any of the UA locals and joint apprenticeship committees can apply for aid.

ESA Helps to Provide Investment Opportunity

Engineers and Scientists of America is sponsoring formation of a mutual fund, which ESA President Joseph Amann claims is the "first" in the labor movement.

The fund is called "ESA Mutual Fund." It has already been filed with the Securities and Exchange Commission by ESA and American Diversified Mutual Securities, Inc., which will manage it.

Sale of shares in the fund will be limited to members of ESA.

Investment advisor is Yates, Heitner and Woods of St. Louis. Riggs National Bank will serve as custodian.

(*Labor continued p. 82*)

Canadian Labor Law

Engineers and contractors urge reforms in labor laws

Two Canadian groups, one of engineers and the other of contractors, are seeking changes in existing labor laws.

At the federal level, the Canadian Construction Association has called for revision of the Federal Labour Code and the Federal Construction Contract Form. CCA is composed of more than 1,000 contractors, manufacturers and suppliers in the Canadian construction industry.

Specifically, CCA wants:

- "Clarifications concerning the illegality of picketing and strikes in various forms."
- "A requirement that labour unions obtain civil status as a legal entity just like any other big business."
- "Prohibition of the closed shop."
- "Settlement of jurisdictional disputes by a Board in Canada rather than by one in Washington, D. C."
- Adoption of the Canadian Standard Forms of Construction Contract on federal projects. These forms are approved by professional institutes of architects and engineers. CCA alleges that the Federal Construction Contract Form now in use is "one-sided, outmoded and . . . unreasonable."

Commenting on the proposed legislation, J. Eric Harrington, president of CCA, said: "Canadian Labour legislation—like that in the U.S.A.—has permitted a marked imbalance between the economic power of certain unions and other sections of the Canadian economy. In the past the unions needed protection but today it is the individual employee, management, and the public who need it."

Meanwhile, the Society of Ontario Hydro Professional Engineers is seeking changes in the Ontario Labour Relations Act to give legal force to collective bargaining by engineers. The society represents 780 registered professional engineers employed by the Hydro-Electric Power Commission of Ontario.

The society is asking that professional engineers, now exempted from the Ontario Labour Relations Act, be included in the labor law's coverage. However, the society wants bargaining units for engineers to be limited strictly to professionals, with no allowance for nonprofessional or for trade union affiliations.

The society is opposed in its efforts by the Association of Professional Engineers of Ontario, which is comparable to the National Society of Professional Engineers in the U. S.

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.40 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record
P.O. Box 12, New York 36, N. Y.

Bids: October 8, 1959.

Construction of Oyster Shell Crushing Plant and Ancillary Services

Sealed proposals for the construction of an Oyster Shell Crushing Plant and Ancillary Services will be received by the Board of Commissioners of the Morgan City Harbor and Terminal District, State of Louisiana, acting as the governing authority of said District, at the City Hall, Berwick, Louisiana, until the hour of 5:00 P.M., Central Standard Time, on the Eighth day of October, 1959, at which time and places the proposals will be publicly opened and read aloud.

The contract drawings, specifications and other proposed contract documents are on file and open for public inspection at the office of the District, 318 First Street, Berwick, Louisiana, and at the offices of the Engineers, Gulf Federated Consultants Inc., Berwick, Louisiana.

Bona fide contractors may secure from the office of the Engineers a complete set of the plans and specifications upon a deposit of One Hundred Dollars ($100.00) per set for not more than three sets for any one bidder. Additional sets will be furnished on payment of $50.00 per set, which payment is not returnable. Checks shall be made payable to Gulf Federated Consultants Inc., the Engineers. Full refund will be made only to actual bidders upon return of up to three sets of the complete documents in good condition not later than seven (7) days after the date set for the opening of bids.

Contract drawings, specifications and proposal forms will be issued only to "Contractors" licensed by the State Licensing Board for contractors in accordance with Act 233 of 1956; "Contractors" not licensed in the current roster issued by the said Board must furnish a certificate from the said Board showing that they have been granted a permit or license authorizing them to lawfully bid, in order to obtain proposal forms.

Each proposal shall be accompanied by a certified or cashier's check drawn on an incorporated bank or trust company and payable without recourse to the Morgan City Harbor and Terminal District, State of Louisiana, in an amount equal to five (5%) per cent of the bid, as a guarantee that if awarded, the bidder will promptly enter into the contract and furnish the required surety bond on the form provided in the contract documents.

Bids received after closing time will be returned unopened; otherwise, all bids shall remain in full force and effect for sixty (60) days after the aforementioned hour and date.

The Board of Commissioners of the Morgan City Harbor and Terminal District reserves the right to reject any and all bids and to waive informalities.

August, 1959.
MORGAN CITY HARBOR AND TERMINAL DISTRICT
By: /s/ A. J. Pattie
A. J. Pattie, President
ATTEST:
/s/ John Fangue
John Fangue, Secretary

Bids: September 27, 1959.

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, sealed proposals will be received until ten-thirty o'clock A. M., advanced standard time, which is nine-thirty o'clock A. M., eastern standard time, on the 10th day of September 1959, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

DIST. NO. 5, E. G. H. Youngman, District Engineer, State Office Bldg., 65 Court Street, Buffalo 2, New York.

CHAUT. R. C. 59-147 IRVING-SILVER CREEK $450,—$8,000.—PLANS—$5.—Cattaraugus Indian Reservation, BR. 1A

BRIDGE REPAIRS (TEMP. STEEL BENT-SOUTH ABUTMENT)

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders". The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

OFFICIAL PROPOSALS enable you to get the greatest variety of bids —and so to get the lowest prices consistent with the best work.

U. S. Government

Sealed bids for installation of mail-flo system at the U. S. Post Office, Philadelphia, Pa., will be received until 2:00 P.M., EDST, September 14, 1959, and then publicly opened. Bidding material may be obtained from the Business Service Center, General Services Administration, 250 Hudson Street, New York 13, N. Y.

Many contractors depend entirely upon the

OFFICIAL PROPOSAL COLUMNS

of

Engineering News-Record

for Opportunities to bid. They might not see your announcements if printed elsewhere.

You undoubtedly want their bids on your contracts. Make sure of them on your next contract.

The cost is only $2.40 a line per issue.

OFFICIAL PROPOSALS

Bids: September 15, 1959

New Jersey Turnpike Authority

ADVERTISEMENT FOR PROPOSALS
CONTRACT NO. R-50 (R-50A, R-50B AND R-50C)

Proposals are invited for Contract No. R-50, R-50A, R-50B and R-50C, which involve the repainting of various bridges between Mile 8 and Mile 117 of the New Jersey Turnpike.

Repainting shall consist of cleaning metal surfaces and applying three (3) coats of paint to all exposed metalwork.

Contract No. R-50 comprises all the work required under Contract No. R-50A, R-50B and R-50C.

The extent of the work under each Contract is as follows:

	Contract No. R-50A	Contract No. R-50B	Contract No. R-50C
Number of Bridge Structures	18	47	7
Estimated Tonnage of Steelwork	17,600	18,200	2,300
Mile Limits	104-117	84-101	8-41

Proposals will be received at the New Jersey Turnpike Authority Administration Building, New Brunswick, New Jersey, until 11:00 o'clock Eastern Daylight Saving Time, on the morning of September 15, 1959, at which time and place said proposals will be publicly opened and read.

Contract documents may be examined during office hours on or after August 26, 1959, at the office of the Authority and will be furnished upon payment of Ten Dollars ($10.00) for each set, not returnable.

NEW JERSEY TURNPIKE AUTHORITY
Joseph Morecraft, Jr., Chairman

August 20, 1959

Bids: September 17, 1959

Miscellaneous Work on Erie Barge Canal

NOTICE TO BIDDERS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Barge Canal Improvement Law and Highway Law, sealed proposals will be received, until 10:30 A.M., D.S.T., September 17, 1959 by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, the Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

Contract U.S. 99 for
New Gates, Lowering the Lower Sill, Replacing the Upper Sill and Other Misc. Work at Lock 19, Erie Barge Canal, Herkimer County, New York

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 12th Floor, The Gov. Alfred E. Smith State Office Bldg., Albany, New York.
(b) Department of Public Works, 270 Broadway, New York City, N. Y.
(c) In addition to the above mentioned offices, plans, maps and specifications for Contract U.S. 99 may be examined and obtained at the office of Mr. Lacy Ketchum, 109 No. Genesee St., Utica, New York.

The deposit for Plans and Proposal Forms for Contract U.S. 99 is $10.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's Estimate of Cost for Contract U.S. 99 is confidential and will be made known after all bids have been opened.

Proposals for Contract U. S. 99 must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of five percentum, (5%) of the bid. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Barge Canal Improvement Law and to the Highway Law as set forth in "Instructions to Bidders" in the contract specifications.

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

OFFICIAL PROPOSALS

Bids: September 17, 1959

Cleaning and Painting Movable Dam

NOTICE TO BIDDERS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Canal Law and Highway Law, sealed proposals will be received, until 10:30 A.M., D.S.T., on September 17, 1959 by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, the Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

Contract M 59-10 for Cleaning and Painting Movable Dam 10, Erie Barge Canal and Bridge E-44 Montgomery and Oneida Counties, New York

Engineer's Estimate for M 59-10 is $33,000.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 12th Floor, The Gov. Alfred E. Smith State Office Bldg., Albany, New York.
(b) Department of Public Works, 270 Broadway, New York City, New York.
(c) In addition to the above mentioned offices, plans, maps and specifications for Contract M 59-10 may be examined and obtained at the office of Mr. Lacy Ketchum, 109 No. Genesee St., Utica, New York.

The deposit for Plans and Proposal Forms for Contract M 59-10 is $10.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Proposals for Contract M 59-10 must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" in the amount of $1,700.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Canal Law and Highway Law as set forth in "Instructions to Bidders" in the contract specifications.

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

Bids: September 8, 1959

Contract BP-502.277

THE PORT OF NEW YORK AUTHORITY
BROOKLYN-PORT AUTHORITY PIERS
PIER No. 6
TEST PILES

Sealed proposals for driving and loading test piles for proposed Pier No. 6 at the Brooklyn-Port Authority Piers will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, September 8, 1959, at which time said proposals will be opened and read in Room 1108.

Contract Documents may be seen at the office of the Assistant Chief Engineer for Design of the Authority, Room 1115, and copies will be furnished upon request. No deposit will be required but the documents shall be returned in good condition not later than forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, August 27, 1959

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 16-5232A) will be received at Prineville, Oregon, until 10 a.m., Pacific Standard Time, October 1, 1959, for furnishing labor and materials for earthwork, structures, and surfacing relocation of Oregon Highway No. 27, Prineville Reservoir, Crooked River Project, Oregon. Location near Prineville, Oregon. Principal items are 165,000 cu. yds., excavation for roadway; 1,512 lin. ft., furnishing and laying 12, 18, 24, 36, 48 and 72-inch corrugated metal pipe; 15,600 cu. yds., crushed rock or crushed gravel surfacing; and other work. Completion time 330 days. For particulars, address Bureau of Reclamation, P. O. Box 637, Boise, Idaho; P. O. Box 477, Prineville, Oregon; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

EMPLOYMENT NATIONAL COVERAGE OPPORTUNITIES

DISPLAYED RATE:

The advertising rate is $39.20 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

An advertising inch is measured 7/8" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

SEPTEMBER 2ND ISSUE CLOSES AUGUST 24TH

UNDISPLAYED RATE:

$2.40 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Position Wanted ads take 1/2 of above rate.

Box numbers—count as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to agency Commission.

Send NEW Ads and Inquiries to Classified Advertising Division or ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36.

ADDRESS BOX NO. REPLIES TO: Box. No. Classified Adv. Div. of this publication. Send to office nearest you.
NEW YORK 36: P. O. BOX 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

• POSITIONS VACANT

Asst. Prof.—To teach undergrad. courses in transportation, surveying, and fluid mechanics. Salary open. Civil Eng., University of No. Dak., Grand Forks.

Wanted: Young graduate Civil or Hydraulic Engineer interested in overseas assignment with consulting firm. State education, background and experience. Reply fully to P-2359, Engineering News-Record.

Contractors project engineer, also General Superintendent, experienced large dam construction. Overseas assignment, good salary and living conditions. Mail full particulars. P-2376, Engineering News-Record.

Wanted—Sanitary Engineer for department head of established firm in Midwest. Prefer age between 35 and 55. Applicant should have had responsibility of design of sewage and water treatment plant. Salary five figures with fringe benefits. Answer P-2353, Engineering News-Record.

Construction Superintendent: Immediate opening. We are seeking an experienced man capable of assuming complete responsibility for road construction projects ranging from $500,000 to $1,500,000. Opportunity to purchase partial interest will follow proven ability. CE degree preferred. Must be experienced in estimating and willing to relocate in central Vermont. Salary open. Reply to: Baslow Construction Corp., 15 Center St., Rutland, Vermont.

Draftsman for work in connection with preplanning on large building construction projects. An excellent opportunity for a capable man to grow with a large and expanding national construction company. Submit complete resume covering experience, education, references, personal data and salary requirements to Personnel Director, Blount Brothers Construction Company, P. O. Box 949, Montgomery, Alabama.

Civil Engineer minimum 5 years experience highway design for established consulting firm. Location Washington, D. C. Submit resume. P-2270, Engineering News-Record.

Experienced Architectural Draftsmen. Excellent opportunity with established consulting firm in Middle West. State education, experience, and required salary. Reply to P-1515, Engineering News-Record.

Growing General Contractor needs recent Engineer Graduates in Management Training program. Excellent opportunity for aggressive, ambitious men to work in south and southwest area. P. G. Bell & Co., Inc., P. O. Box 13196, Houston 19, Texas.

Assistant City Engineer, Iowa City, Iowa. Starting Salary: $6000-$7200 per year dependent on individual qualifications. Degree in Civil Engineering. Qualifications for registration in the State of Iowa. Position will include general municipal engineering and administrative duties. Advancement assured for competent man. For information and application write City Manager, City Hall, Iowa City, Iowa.

Foundation contractor requires young, enthusiastic engineer with some field and estimating experience to work in promotion of new contracts. Soils and piling background desirable. Middle Atlantic location. Send qualifications, salary requirements, availability to: P-2332, Engineering News-Record.

• POSITIONS VACANT

Graduate Civil Engineer with at least two years experience in layout of water mains, small pumping stations and filter plants. Send resume of experience, references, salary desired, date available to Gannett Fleming Corddry & Carpenter, Inc., Box 366, Harrisburg, Penna.

We are seeking Engineers and Construction men on the Vice-President level for International operations. Minimum investment opportunity $15,000.00 if rigid qualifications are met. Salary and profit sharing plan. Send resume to P.O. Box 722, University Station, Montreal, Quebec.

Estimator—Top pay and working conditions for a fully experienced productive competitive estimator. Wingate Construction Company, 34 South 17th St., Phila. 3, Pa.

Construction superintendent, concrete and masonry, multi-story housing project, location American Virgin Islands, start 1 October, duration 25 months, salary and bonus. Send complete resume P. O. Box 37-683, Miami, Florida.

Surveyor: With experience in running metes and bounds surveys and subdivision work. Top salary to qualified man. Location N. J. Coast town. P-2462, Engineering News-Record.

Construction Supt.—Sewage Plant, Water works $1,000,000, range. Experience supervision, excavation, concrete and mechanical work. Work in N. J., N. Y., & Conn. P-2433, Engineering News-Record.

Experienced Power House Electrical Engineer Wanted for work scheduling, material coordination, cost analysis on large hydro project. Send resume and expected salary. P-2428, Engineering News-Record.

Wanted at once. An experienced Structural Engineering Draftsman. Good working hours, top salary. Ewing and Forrette, Architects, 628½ Sixth Street, Rapid City, South Dakota.

Engineer—Structural Steel Sales Promotion we are searching for a Civil or Architectural Engineer, preferable age 30 to 45, to handle technical and promotional work with customers of the structural steel fabricating industry. Headquarters will be in our district office at Syracuse, New York. Considerable travel through upper New York state required. Applicants should have a B.S. in C.E. or A.E. and preferably be registered. Experience in structural steel design and construction required. Salary open, depending upon experience. Insurance and retirement plans available. Send complete resume, recent photo if available, and salary requirements by mail to American Institute of Steel Construction, Inc., 101 Park Avenue, New York 17, New York.

Registered Civil Engineer wanted by City of 7,000 population, located on the Minnesota-Canadian border. Salary is open. State qualifications, salary expected and full particulars to City Clerk, Vernon L. Peterson, International Falls, Minnesota.

Sales Engineer—National company has openings in the Midwest for engineering graduate preferably with asphalt paving experience. Straight salary, car and expenses. Contacts are made with highway departments, consulting engineers and contractors. Replys held confidential. P-2463, Engineering News-Record.

Construction Office Manager. Accounting Degree and Heavy Experience in Commercial and Residential Building. Southeastern U.S. Resident Preferred. Send full resume, references and salary required to P-2470, Engineering News-Record.

• POSITIONS WANTED

Construction Supt. and Reg. Engineer desires sewer work. Both have extensive heavy construction experience. Will assume responsibility for engineering, layout, and field supervision for salaries plus % of profit. P. O. Box 6336, Columbus, Ohio.

Equipment Maintenance superintendent. For heavy construction co. Top level manager thoroughly experienced in repair and preventive maintenance. Age 36, foreign or domestic. PW-2344, Engineering News-Record.

Construction Executive. 40, graduate Engineer, head of smaller construction company for 10 years doing public work, buildings, water and sewage facilities, and general construction. Available for responsible position. PW-2382, Engineering News-Record.

Civil Engineer, 31, married, Canadian, 5 years experience with consultant in storm and sanitary sewerage, bridges, desires relocation to southern states. Resume on request. Available 1 to 6 weeks. All replies acknowledged. PW-2351, Engineering News-Record.

Sewer and Tunnel Supt. specialized in deep bad sewers, wellpointing, heavy shoring, rock, muck and concrete work. PW-2369, Engineering News-Record.

Civil Eng'r., P.E., 33, 12 yrs. wide exp. design, specs., estimates, contract administration-wide variety of civilian & military projects PW-2417, Engineering News-Record.

Civil Engineer, B.Sc(Eng.) 32, married. Seven years experience in planning, design and construction of hydroelectric and industrial projects. Desires position with consulting engineering firm or contractor as project engineer. Fluent French and Spanish. PW-2375, Engineering News-Record.

Project mgr.—Const. Supt; Age 52; 30 yrs const. experience, will consider any type project; best references; $15,000 min.; available Sept. 1; PW-2335, Engineering News-Record.

Bridge Supt. or Foreman. Take full charge. PW-2325, Engineering News-Record.

Bridge & Structural Designer. Long experience on railroad and highway bridges, steel-concrete industrial structures. Cornell grad. Location mid-west or California. PW-2310, Engineering News-Record.

Civil Engr.—12 yrs. experience, reg. P.E. & L.S., desires responsible position with consultant or municipality in southwest area. Available October. PW-2301, Engineering News-Record.

Construction Executive or Project Mgr. 25 years experience covers Concrete, Earth Dams, Power houses, Bridges, Tunnels and Marine Construction. Qualified to Estimate, Plan and Construct in the U. S., South Amer. and Middle East. PW-2271, Engineering News-Record.

Schools Construction Supervisor. Engineer, currently employed by Owners & Architects jointly, $9,600, on several schools but seeking change of location to California or Southwest. PW-2269, Engineering News-Record.

Construction Executive: Presently vice president, treasurer and director of large international engineering and construction firm. Responsible for financial, banking and tax matters, as well as general business operations. Experienced in all phases management control, corporate administration. Have formed and operated foreign companies. Broad engineering and construction experience—estimator, engineer, superintendent, general manager. Member ASCE, Military Engineers, The Moles and American Management Assoc. PW-2138, Engineering News-Record.

• POSITIONS WANTED

Project-manager. 20 years heavy construction. Top production. U. S. and foreign. PW-2163, Engineering News-Record.

Executive, thoroughly experienced buildings and Heavy Construction, open for connection requiring top man to assume full responsibility. Minimum $15,000. C. O. Sutherland, 47 Rich Avenue, Mount Vernon, N. Y. Tel. MO 4-7927.

Purchasing: General Construction. Excellent experience large & small jobs. Well versed in office mgmt. equip. and material procurement. Some experience with state and federal contracts. PW-2424, Engineering News-Record.

Construction superintendent - general - heavy - thirty years experience, practical large projects, A.E.C. ore, cement, disposal plants, industrial, commercial. Prefer Western location. Available September 15. C.E. LaBruyere Box 525 Jackson, South Carolina, phone 3687.

Superintendent Electrical Construction. experienced in power stations, industrial plants, substations and distribution systems, 25 years experience. PW-2435, Engineering News-Record.

• POSITIONS WANTED

Mechanical Contractors: Vice president of a national concern desires permanent connection with smaller company eager to grow. Proven ability to secure and manage multi million dollar work. Broad experience in commercial, institutional and industrial fields. Wide acquaintance among key subcontractors and major general contractors. Under 40. PW-2426, Engineering News-Record.

Executive. Top Performance Record. 23 Years management and administration, all phases of heavy construction. PW-2321, Engineering News-Record.

Chief Estimator and Office Engineer, single, 34 yrs. 13 yrs experience in industrial commercial, institutional, residential and heavy construction, cost control, preparation of bids, sub-contracting, available for domestic or foreign. Perfect in Span., German, French. PW-2413, Engineering News-Record.

Mechanical Engineer, plumbing, heating, air conditioning and process piping. Thoroughly experienced estimating, specification writing, purchasing and contract negotiation. Age 39, desires contractor's office, consultant or with manufacturer. Prefer New York City area. PW-2444, Engineering News-Record.

• POSITIONS WANTED

Ready-Mixed Concrete Plant Manager—Civil Engineer, 39, with proven promotional, construction and management ability desires location west or southwest. PW-2454, Engineering News-Record.

Civil Engineer. 39. M.S. with 17 years experience construction, design, promotion and technical service. Location open. PW-2457, Engineering News-Record.

Civil Engineer. 39. M.S. "Expert" in concrete, soils and field engineering, available October. PW-2460, Engineering News-Record.

Construction Exec.—B.S.C.E. Young, aggressive, top record. Employed, wants change. Diversified responsible experience, all crafts. PW-2449, Engineering News-Record.

Draftsman with 12 years practical experience in steel fabrication, design and const. Age 32, married, desires responsible position. I pilot my own 4 place plane which could be used in job. Reply to PW-2469, Engineering News-Record.

DON'T FORGET THE BOX NUMBER

WANTED
To Whom It May Concern:

We are a corporation doing approximately $10,000,000.00 worth of road, bridge and dam construction work annually; have spent much time in trying to break in supervision, have found the effort costly and futile. We are now looking for top-notch supervision: honest, ambitious, *intelligent*, preferably young, to grow with a growing organization. We are prepared to pay top money for the right man. Diversified experience not necessary, prime requisite is right attitude and brains. Work is in the New England States and New York State. Reply to

P-2291, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

Manufacturer's District Representative
North East Territory

Excellent opportunity—Experienced in underground excavating equipment.

THE PARSONS COMPANY
Division of Koehring Company
NEWTON, IOWA

COMPUTER ENGINEER

Registered Graduate Civil Engineer with 5-year minimum design experience in highways and bridges. Some computer experience desirable. Responsible, permanent position in our Bendix G-15 Computer Division. Salary open. Send resume to:

RICHARDSON, GORDON AND ASSOCIATES
3 Gateway Center, Pittsburgh 22, Pennsylvania

SOILS ENGINEER WANTED

Master's Degree in Soil Mechanics, registration desirable but not necessary: ASSISTANT MANAGER'S position in growing foundation engineering and testing corporation in Midwest. Profit sharing.

P-2405, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

PLANNER

Community Planner I. $5244-$6036. Starting salary above minimum rate for outstanding qualifications. Longevity rates above maximum salary for long service. Degree in City Planning, Architecture, Engineering or related fields. To participate in the preparation of the various aspects of urban renewal plans.

CITY PERSONNEL DEPARTMENT
404 City-County Bldg., Madison 9, Wis.

TECHNICAL EDITOR

for housing publication in Washington, D. C. Some background in architectural or civil engineering desirable. Writing subordinate to ability to recognize a story and to visualize it graphically. Some travel. Salary open. Write full personal details.

P-2408, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

SALES ENGINEERS SANITARY

Dorr-Oliver's expanding activity in the Sanitary field has created a need for additional sales staff.

We are looking for men who have a B.S. or M.S. Degree in civil or chemical engineering with sanitary option. Some experience preferred in public health, consulting engineering or equipment sales.

Please send resume including salary requirement to:

C. R. FARRELL

DORR-OLIVER INC.

Havemeyer Lane — Stamford, Conn.

The Commonwealth of Pennsylvania Seeks

HIGHWAY & BRIDGE DESIGNERS

with C.E. degree and 1 to 5 years of design experience.

• JUNIOR DESIGNERS • DESIGNERS • SQUAD LEADERS • SUPERVISORS

Salaries from $5500 to $9000 per year

based upon qualifications.

Write for application forms. Filing date for Civil Service examinations Sept. 23.

PERSONNEL, PA. HWYS. DEPT., HARRISBURG, PA.

SENIOR BRIDGE CONSTRUCTION ENGINEER

for work in SOUTHEAST ASIA

Senior engineer needed to complete technical party. Work involves supervision of construction of highway bridges in South Vietnam. High degree of initiative, judgment and skill in handling human relations required in addition to professional competence. Eighteen month minimum employment agreement. Only those interested in difficult and challenging work shall apply.

Minimum 20 years experience required in this highly responsible position, including deep water foundations and steel erection. Age limit 65 years.

CAPITOL ENGINEERING CORPORATION

DILLSBURG — *Consulting Engineers* — PENNSYLVANIA

SEARCHLIGHT SECTION

CLASSIFIED ADVERTISING

BUSINESS OPPORTUNITIES - EQUIPMENT - USED or RESALE

DISPLAYED RATES

The advertising rate is $25.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.
AN ADVERTISING INCH is measured ⅞ inch vert. on one col., 3 columns—30 in. to a page.
EQUIPMENT WANTED or FOR SALE ADVERTISEMENTS acceptable only in Displayed Style.

UNDISPLAYED RATES

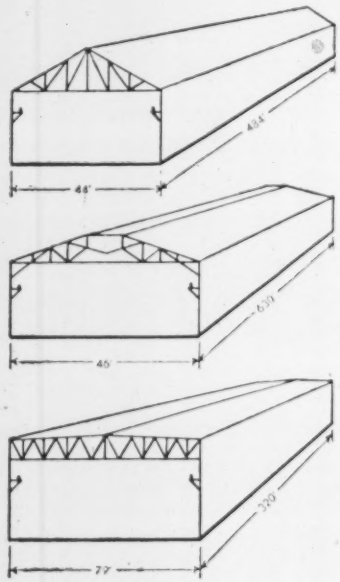
$2.40 a line, min. 3 lines. To figure advance payment count 5 average words as a line.

BOX NUMBERS count as one additional line in undisplayed ads.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads.

Dismantling surplus facilities as a result of
Aluminum Company of America's
Modernization Program at Massena, N. Y.

21 Steel-Frame Heavy-Industrial BUILDINGS



IN EXCELLENT CONDITION
MUST BE SOLD AT ONCE
Various Sizes, Clear Spans,
Brick Curtain Walls.
All with Overhead Cranes
Easily Dismantled
Ideal for Re-erection

HEAVY ELECTRICAL EQUIPMENT
Including motors, generators, transformers, convertors, rectifiers, controls, etc.

Rotary ball-mill, cement mixer batch plant, foundry items, gas producer machines, crushers, blowers, scales, heavy carts, crane boxes, bucket and belt conveyors, hydropneumatic accumulator, etc.

Structural steel shapes, pipe, valves, grating, overhead doors, steel & wood silos and numerous other items.

For complete information, prices and inspection arrangements contact

CUYAHOGA WRECKING CO.

Sales and Field Office
P. O. BOX 384 MASSENA, N. Y. RO 4-0253

AIRPLANE HANGAR
TETERBORO, NEW JERSEY

Bids are invited for the purchase and removal of a combination hangar, factory and office building plus three annex buildings at Teterboro Airport.

The Main Structure, of steel frame construction, is 165' x 200' with a clear span hangar area of approximately 108' x 137' x 24' high with approximately 21,000 sq. ft. of factory or work space on either side and at rear of hangar and over 7,500 sq. ft. of office space on second floor. Steel roof trusses are over hangar area. Wood trusses and steel beams over office area. Exterior walls are brick and stucco.

Annex buildings, of masonry and brick construction, consist of Boiler Room, Garages and a 50' x 75' clear span building with wooden trusses. All roofs are of wood with 3 ply roofing.

Complete with heating plant and sprinkler system.

Bids are due on or before 3 P.M. Wednesday, September 16, 1959.

For photographs, floor plans and bid papers write or phone:

The Port of New York Authority
Purchase & Administrative Services Dept.
111 - 8th Avenue, New York 11, N. Y.
Tel.: ALgonquin 5-1000, Ext. 206

CONSTRUCTION MANAGEMENT
PURCHASING-ESTIMATING PROJECT SUPERVISION

Twenty-two years in responsible charge of construction of Industrial, Commercial, Public and Military Installations; including factories, housing, supermarkets, schools, Nike Installations, Atomic Energy Work, Refineries, Sewage and Water Treatment Plants and other Light and Heavy Construction.

Competent graduate Engineer with experience in Civil, Mechanical and Marine Engineering Fields.

Capable Estimator, Administrator, Purchasing Agent and Project Manager.

Superintendents and other key personnel available.

Appraisals and Claim Preparation.

Services available to Contractors and Owners on a Fee, Participation, or other mutually satisfactory basis.

NATHAN PUTCHAT
1963 Pennington Road, Trenton 8, New Jersey
Phone Tuxedo—2-0058

U. S. Army Telephones EE-8 fully reconditioned. Suitable for intercommunication between 2 or more points. $35.00 for 2 telephones, including 100 ft. of wire and batteries. Additional wire 1¢ per ft. or $25.00 per mile. Write for free list on telephones. All shipments F.O.B. Simpson, Pa.

TELEPHONE ENGINEERING CO.
Dept. ENR-169 Simpson, Pa.

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty-eighth year.
Write today, without obligation.
WILSON *Engineering Corp.*
College House Offices HARVARD SQ. CAMBRIDGE, MASS.

• *BUSINESS OPPORTUNITY*

New Building Construction firm with Stran-Steel Franchise covering Central Florida (fastest growing area in Country) desires a partner Registered C. E. approx. 40 yrs. age with $20-25000 to invest. Unlimited opportunity. BO-2239, Engineering News-Record, Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

WANTED
16" Heavy Duty DREDGE
Give particulars.
ROBERT E. LEE & CO., INC.
Box 417, Manning, S. C.

PUMPCRETE FOR SALE

VERY LOW PRICE

200 double, 6 cylinder gas engine; pugmill remixer, 4 cylinder engine.

J. C. TULLY, 33 N. LaSalle Street, Chicago 2, Illinois

RAILS-TIES

TRACK ACCESSORIES

You're on the Right Track with "West Virginia"

TRACKWORK

Rails, steel ties, splice and angle bars—whatever your needs, you are assured of rugged construction from quality steel when you specify "West Virginia." "One plant production" allows shipments in carloads. For further information, contact Connors Steel Division, P. O. Box 316, Huntington, West Virginia.

CONNORS STEEL DIVISION

PORTER

H.K. PORTER COMPANY, INC.

RAILROAD Cross and Switch **TIES**

Promptly from adequate stocks

NEW and USED *(as available)*

GILLIS & COMPANY

134 Breckenridge Lane Louisville 7, Ky

TW 5-9484

SAVE ON YOUR **TRACK** CHAINS ROLLERS SPROCKETS IDLERS, ETC.

for Caterpillar—International—Allis Chalmers

BRAND NEW—GUARANTEED

SEABOARD EQUIPMENT CO., INC.

161-10B Jamaica Ave., Jamaica 32, N. Y.

AX-7-4422

UNUSED! BEST ALL-AROUND MATERIAL-HANDLING CRANE!

FOR SALE OR RENT!

Less Than ½ Original Price! Guaranteed Factory-New Performance! Subject to Approval!

INTERNATIONAL T-9 TRACTOR WITH TRACKSON SWING CRANE

Tops in power . . . strength . . . versatility! Designed and constructed to withstand rough usage with a minimum of maintenance. Operates smoothly and easily with maximum safety to driver. CAPACITY 7000-8000 lbs. BOOM SWING 280°.

For specifications, prices, delivery—write, wire or phone collect.

MEMPHIS EQUIPMENT *Company*

ARMY TRUCKS • PARTS
CONSTRUCTION EQUIPMENT

MAIN OFFICE • 766 SO. THIRD ST. MEMPHIS, TENNESSEE

ALLEGHENY BRANCH • 821 LINCOLN WAY WEST CHAMBERSBURG, PENNSYLVANIA

Complete 16 ft. Diameter Tunnel Spread

Concrete forms, 4", 6", 8", 24" Spiral Welded Pipe, Locomotives, Muck Cars, Tunnel Agitators, Pumps, Pumpcrete machines, etc. For information and catalogue, write or phone

WESTERN CONTRACTORS SUPPLY CO.
4817 Lake St., Melrose Park, Ill.
CO. 1-8875 FI. 5-0690

PIPE

Surplus New & Used

FOR SALE, WANTED OR RENT

Call: HYACINTH 7-4900

PIPE, VALVES & FITTINGS

PILING • CULVERTS

ASBESTOS-CEMENT PIPE • ALUMINUM PIPE

ALBERT PIPE SUPPLY CO., Inc.

103 VARICK AVE., BROOKLYN 37, N.Y.

PIPE

500,000 ft 10¾" O.D. 35#
200,000 ft 12¾" O.D. 40#
200,000 ft 8⅝" O.D. 28#
20,000 ft 16" O.D. 42#

All Machine Cleaned. Plain End. No. 1 Grade.

INDIANA-OHIO PIPE CO.
P.O. BOX 5112 Shepard Sta. Phone C.L. 35522
COLUMBUS 3 OHIO

ASSOCIATED PIPE & FITTING CO., INC.

PILING PIPE SHELLS MANDREL FITTINGS | "H" BEARING PILE SLEEVES AND SHOES | K & M ASBESTOS CEMENT PIPE | CULVERTS CIRCLE ARCH SECTIONAL

262 RUTHERFORD BLVD., CLIFTON, N.J. • PR 3-8400

PIPE

VALVES and FITTINGS

All Sizes in Stock

NEW-USED

GREENPOINT PIPE SUPPLY CORP.

Bogart and Stagg Streets, Brooklyn, N. Y.

Reliable Heavy Excavation Equipment

DRAGLINES, SHOVELS, CRANES, DRILLS, TRUCKS

15-W Bucyrus Erie Elec. Drag, 215', 13 yd.
9-W Bucyrus Erie Elec. Drag, 160', 11½ yd.
9-W Bucyrus Erie Diesel Drag, 200', 9 yd.
7400 Marion Diesel Drag, 175', 13 yd.
7400 Marion Elec. Drag, 175', 12 yd.
625 Page Diesel Drag, 160', 9 yd.
360-M Marion Elec. Drag, 175', 8 yd.
621-S Page Diesel Drag, 125', 7 yd.
200-W Bucyrus Erie Diesel Drag, 125', 6 yd.
5-W Bucyrus Erie Diesel Drag, 100', 6 yd.
2400 Lima Dragline, 130', 5 yd.
4500 Manitowoc Drag, 120' 5 yd.
120-B Bucyrus Erie Elec. Drag, 115', 5 yd.
3900, 3500 & 3000 Manitowoc Cranes
111-M Marion Drag, 100', 4 yd.
1601 Lima 4 yd. Shovel/Drag
1055 P&H Drag, 80', 3½ yd.
1201 Lima Dragline, 85', 3 yd.
54-B Bucyrus Erie Drag, 80', 2½ yd.
5560 Marion 26 yard Elec. Shovel
750-B Bucyrus Erie 20 yd. Elec. Shovel
1050 B Bucyrus Erie 20 yd. Elec. Shovel
5480 Marion 18 yd. Elec. H. L. Shovel
151 M Marion 7 yd. Elec. Shovel
170-B Bucyrus Erie 6½ yd. Elec. Shovel
4161 Marion 6 yd. Elec. Shovel
120-B Bucyrus Erie 4 yd. Elec. Shovel
111M Marion 4 yd. Standard Shovel
54-B Bucyrus Erie 2½ yd. Standard Shovel
Large selection of smaller Shovels and Draglines available
Model T-750 Reich Truck Mounted Rotary and Down-the-Hole Drill
Euclid Trucks—Rear & Bottom Dump
Truck Cranes, Dozers, Scrapers, Front End Loaders, Drills, Buckets, Attachments and other Misc. Equipment Available

FRANK SWABB EQUIPMENT CO., INC.
313 Hazleton Nat'l. Bank Bldg.
Hazleton, Pa. GLadstone 5-3658

LOW COST INSTALLATION AND OPERATION

CABLEWAYS

IMMEDIATE SHIPMENT

ELECTRIC, STEAM or DIESEL
CAPACITY 5 TO 20 TONS
SELL, RENT or BUY

FOR DAMS, DIKES, BREAKWATERS, FILTRATION AND SEWERAGE PLANTS

FOR SPEED, ECONOMY, EFFICIENCY, FLOOD SAFETY, LABOR REDUCTION

AMBURSEN DAM CO. INC.
295 MADISON AVE. NEW YORK

BUILDING COMPANY WANTED

$3,000,000 AVAILABLE

for purchase of participation in successful, active company.

Write fully to: Box E.R.-9

Suite 1606, 1475 Broadway, New York 36, N. Y.

FOR SALE

LOCOMOTIVE CRANE

30 ton Browing, steam, w/90 ft boom, outriggers, 8 wheels, std. gauge.

SLIP RING MOTOR

300 hp, G.E. type 1-178, form M, 3 ph. 60 cyc. 2300 v. 600 rpm, w/drum controller and grids.

PULVERIZERS

2—Jeffrey, type B2, 24" x 20"

SWING HAMMER. Late Model

all are in good condition

DALTON SUPPLY CO. Box 366, DALTON, PA.

SURVEYING INSTRUMENTS

USED • REBUILT • SALE
RENT • REPAIRING

TRANSITS AND LEVELS

New or Rebuilt Sale or Rent

Headquarters for REPAIRS — any make — Factory Service. We will also *buy* your old instruments or take them in *trade*.

A complete line of Engineering Instruments and equipment for field or office. Write for catalog NLR 98.

WARREN-KNIGHT CO.

Manufacturers of Transits and Levels
136 No. 12th St., Philadelphia 7, Penna.

TRANSITS & LEVELS

Various Makes
NEW & REBUILT

Fully equipped modern shops — all makes and models repaired — all work guaranteed — prompt service — complete line field supplies.

INSTRUMENTS RENTED

Midwest Representatives: W. & L. E. Gurley, Distributors—Filotecnica Salmoiraghi

NATIONAL BLUE PRINT CO.
Established 1913
210 S. Canal St. Chicago (6), Ill.

ALL MAKES

RE-BUILT REPAIRS RENT REAL EXPERTS

BUFF

69 Day St., New York WOrth 2-2797

GET DIESEL FUEL ECONOMY

with low investment from used diesel tractors — White — Cummins diesel tractors for all purpose hauling. Also Mack tandem axle tractors. Located all areas.

Write or phone, R. W. Allen
MACK TRUCKS, INC.
Plainfield, N. J. Phone PL. 6-8600

FOR ADDITIONAL INFORMATION

About Classified Advertising,

Contact The McGraw-Hill Office Nearest You.

ATLANTA, 3
1301 Rhodes-Haverty Bldg.
JAckson 3-6951
D. BILLIAN

BOSTON, 16
350 Park Square
HUbbard 2-7160
D. J. CASSIDY

CHICAGO, 11
520 No. Michigan Ave.
MOhawk 4-5800
W. HIGGENS—E. S. MOORE

CLEVELAND, 13
1164 Illuminating Bldg.
SUperior 1-7000
W. B. SULLIVAN—T. H. HUNTER

DALLAS, 2
1712 Commerce St.,
Vaughn Bldg.
RIverside 7-5117
GORDON JONES—F. E. HOLLAND

DETROIT, 26
856 Penobscot Bldg.
WOodward 2-1793
J. R. PIERCE

LOS ANGELES, 17
1125 W. 6 St.
HUntley 2-5450

NEW YORK, 36
500 Fifth Ave.
OXford 5-5959
H. T. BUCHANAN—R. P. LAWLESS
T. BENDER

PHILADELPHIA, 3
Six Penn Center Plaza
LOcust 8-4330
H. W. BOZARTH—T. W. McCLURE

ST. LOUIS, 8
3615 Olive St.
JEfferson 5-4867

SAN FRANCISCO, 4
68 Post St.
DOuglas 2-4600
S. HUBBARD

SEARCHLIGHT Equipment Locating Service

This service is aimed at helping you, the reader of "SEARCHLIGHT", to locate Surplus new and used Engineering and Construction equipment *not currently advertised.* (This service is for USER-BUYERS only). No charge or obligation.

How to use: Check the dealer ads to see if what you want is not *currently* advertised. If not, send us the specifications of the equipment wanted on the coupon below, or on your own company letterhead to:

Searchlight Equipment Locating Service

c/o ENGINEERING NEWS-RECORD
P. O. Box 12, N. Y. 36, N. Y.

Your requirements will be brought promptly to the attention of the equipment dealers advertising in this section. You will receive replies directly from them.

Searchlight Equipment Locating Service
c/o ENGINEERING NEWS-RECORD
P. O. Box 12, N. Y. 36, N. Y.

Please help us locate the following equipment components.

.....
.....
.....

NAME .....
TITLE .....
COMPANY .....
STREET .....
CITY .....

FOR SALE

EUCLIDS: Rear, Bottom and Scrapers
9W Bucyrus-Erie Dragline, 8½ yd.
5W Bucyrus-Erie Dragline, 5 yd.
200W Bucyrus-Erie Dragline, 6 yd.
170B Bucyrus-Erie Shovel, 6½ yd.
120B Bucyrus-Erie Shovel, 5 yd.
54B Bucyrus-Erie Shovel, 2½ yd.
38B Bucyrus-Erie Shovel, 1½ yd.
80D Northwest Shovel, 2½ yd.
4500 Manitowoc Dragline, 5 yd.
3000 Manitowoc Dragline, 1¾ yd.
2400 Lima Dragline, 6 yd.
1201 Lima Dragline, 3 yd.
1¼ yd. Marion Shovel. New in 1956.

SHOVELS—DRAGLINES—CRANES
(All sizes, makes, Crawler and walking type)

WILLIAM LUBRECHT, III
Construction Equipment
311 W. Diamond Ave. Hazleton, Pa.
Telephone GI 5-4041 or 5-0253

Need A "Lift"?

CRANES, INC.
RENTALS

Manitowoc 3900's — Crawlers 3500's

Latest Models
Long Booms and Jibs

TRUCK CRANES

Link Belt and Bay City. Cap. to 40 Tons. Booms to 200 ft. Hoists—Welders—Generators

Maspeth 78, N. Y. ST 4-1776

FOR SALE
New, Domestic, Prime

STEEL

50,000 lineal feet Beams 21-inch wide flange at 62# in 42 or 54 foot lengths.

3,000 lineal feet Beams 36-inch wide flange at 300# in 54 foot lengths.

14,000 lineal feet Pipe 33" OD X 0.500 wall thickness at 174#. F.O.B. Houston. Subject to prior sale.

Contact: BROWN & ROOT, INC.
Purchasing Agent, P.O. Box 3
Houston 1, Texas. Phone FA 3-7121

CRANES FOR RENT

CRAWLERS — Capacities to 60 tons Booms to 180 ft.
TRUCK CRANES — Capacities to 35 tons Booms to 130 ft.

P & H. Lima and Manitowoc.
Top-Condition erection cranes

ROGER SHERMAN
CRANE SERVICE, INC.
East Hartford, Connecticut JAckson 8-4106

FOR SALE OR RENT
2½ YD. LINK-BELT CRANE-DRAGLINE
K-595, 140' BOOM & JIB
CAT. D17000 ENGINE

50 TON AMER. DIESEL LOCOMOTIVE CRANE. 1946
30 TON BROWNING DIESEL LOCOMOTIVE CRANE
44 TON GEN. ELEC. DIESEL ELEC. LOCO.
25 TON WHITCOMB DIESEL ELEC. LOCO.
60 TON MANITOWOC 3900 CRANE
AMERICAN #140 3D DIESEL HOIST
90 HP LIDGERWOOD 2D DIESEL HOIST
Also Other Constr. & Ry. Equip.

WHISLER EQUIPMENT CO.
1905 Railway Exchange Bldg., St. Louis 1, Mo.
CHestnut 1-4474

FOR SALE OR RENT
FLORIDA LOCATIONS

STEEL SHEET PILING
350 Tons MP115 Various Lengths

STEEL BEARING PILING
70 tons 8"x36#
100 tons 12"x53#
300 tons 14"x73#

PAMAR, INCORPORATED
P. O. Box 2397, Fort Lauderdale, Florida
Tel. LUdlow 3-6441

FOR SALE

2—Manitowoc Model 3500 Lift-crane

1—Manitowoc Model 3900 Lift-crane

1—Lima Model 802 Dragline

MANITOWOC-FORSYTHE CORPORATION
37-11 Vernon Blvd.—*EXeter 2-6125*
Long Island City 1, New York

PILING

SURPLUS NEW and USED — **For Sale, Wanted or Rent**

PUMPCRETE
Current Models Sale or Rent
Engineering Service & Parts
R. T. SHERROD
Concrete Equipment Company
Jones Island, Milwaukee 7, Wis.

H & SHEET STEEL PILING

3700 PCS. BETH. SP6A, 50' 56' & 48' & 40' & 35'
450 PCS. MP112—12', 25', 35', 40' & 60'
850 PCS. BETH.—AP3 20', 25', 30', 35' & 60'
790 PCS. BETH.—DP2—31' 35' 40' 50' 60'
1200 PCS. ZP38-ZP32—25' 35' 50' 60' & 65'
1300 PCS. BP10 BP12—BP14—55' to 60'
400 PCS. BETH. ZP27—25', 30', 35' & 40'

PILING BOUGHT—SOLD—RENTED
STOCKS: N. Y.—BOSTON—BUFFALO
MONTREAL—BALTIMORE—JACKSONVILLE
CLEVELAND—RICHMOND—NEW ORLEANS

DIESEL LOCOMOTIVE
12—Gen. Elec. 100, 80, 65, 45, 25 & 23 ton
25 Ton New Whitcomb Diesel Elec.

5 WHIRLEY CRANES
1—50 Ton Elec. 150' Boom 85' Gantry
2—50 Ton, 1—28 Ton 100' Boom, Steam

R. C. STANHOPE, INC.
60 E. 42nd St. N. Y. 17, N. Y.
Telephone MU-2-3075 or MU-2-1898

We do a Nation-wide business in
STEEL SHEET PILING

IMMEDIATE SHIPMENT
815 pcs. 25 to 30 ft. Beth. SP-5a—New York
100 pcs. 62 ft. Beth. ZP-32—Connecticut
103 pcs. 60 ft. MZ-27—Tennessee
150 pcs. 60 ft. SP-4—W. Virginia
290 pcs. 60 to 30 ft. M-16 & M-115—Tennessee
370 pcs. 60 to 30 ft. M-115 & M-116—Indiana
150 pcs. 34-30 ft. M-116—Michigan
81 pcs. 25 ft. M-115—Mississippi
220 pcs. 15 ft. M-115—Missouri
Other lengths and sections at various locations. Storage yards at CHICAGO, BUFFALO & MEMPHIS.
Also 10" x 42# and 12" x 53# BP 60' in stock.

PILE DRIVING EQUIPMENT

VULCAN AND McKIERNAN-TERRY PILE HAMMERS & EXTRACTORS
All Sizes—For Rent & Sale—Immediate Shipment

MISSISSIPPI VALLEY EQUIPMENT CO.
1908 Railway Exchange Bldg.
St. Louis 1, Mo. CHestnut 1-4474

EUCLID BOTTOM DUMPS

5—25FDT-58W year 1946 6—20FDT-59W year 1951 & 1953 13 yd. capacity. All very good condition.

Some new tires. Available immediately. Subject to prior sale or disposition.

L. B. SMITH, INC.
357 W. Fayette St. Syracuse, N. Y.
Phone: GRanite 5-2196

STEEL SHEET PILING

AVAILABLE FOR PROMPT SHIPMENT

Pcs.	Section	Length	Location
550	MP-112	20 to 22 ft.	Nebraska
220	MP-116	57 to 60 ft.	Arkansas
111	MP-115	50 to 60 ft.	Kansas City
115	MP-115	12 to 14 ft.	Tennessee
172	MP-116	24 to 30 ft.	Kansas
120	MP-112	50 to 60 ft.	Chicago
475	MP-116	40 to 60 ft.	Chicago

CONMACO, INC.
PHONE DRexel 1-3930
804 KANSAS AVE., KANSAS CITY, KANSAS

FORSYTHE EQUIPMENT CO., INC.

MANITOWOC SPEEDCRANES

RENTALS

Capacities to 70 Tons
Booms to 140 ft. and 30 ft. jibs
Special rates on long rentals

Exeter 2-6125 — 37-11 Vernon Blvd.
Long Island City 1, New York

---

800 Pcs. Larssen Piling in New Orleans

New & Used Larssen Section II 26 lb. per sq. ft. in 20 ft. & 25 ft., 30 ft. lengths. No 400 Vulcan Pile Extractor.

SEABOARD STEEL CORP.
P.O. Box 5071 Sarasota, Fla.
Tel Ringling 7-0461

STEEL SHEET PILING

LARSSEN and ROMBAS Sections

STOCKS AVAILABLE IN:
- Linden, New Jersey
- Ft. Lauderdale, Florida
- Houston, Texas

WESTERN SERVICES CORPORATION
601 E. Linden Ave., Linden, N. J.
MArket 4-4000 HUnter 6-4000

In Florida Call: Port Everglades Steel Co. Ft. Lauderdale—JA. 4-6545
In Houston Call: G. Oliver—CA. 4-7234

PROFESSIONAL SERVICES

MIDDLE ATLANTIC

Airport Fueling Systems, Inc.

Specialists in Liquid Handling Systems

1212—18th Street, N.W.
Washington 6, D. C.

Howard, Needles, Tammen & Bergendoff

Consulting Engineers
Bridges, Structures, Foundations, Express Highways
Administrative Services

Kansas City - Cleveland - New York

E. Lionel Pavlo

Consulting Engineer

Design, Supervision, Reports
Bridges, Highways, Expressways
Marine Structures, Public Works
Industrial Construction, Airports

642 Fifth Ave. New York 19, N. Y.

King & Gavaris

CONSULTING ENGINEERS

Bridges, Highways, Tunnels
Waterfront Structures, Reports
Investigations, Foundations
Design & Supervision of Construction

425 Lexington Ave. New York 17, N. Y.

Lawrence S. Waterbury

Consulting Engineer

Bowling Green 9-9298
26 Broadway New York 4

D. B. Steinman

Consulting Engineer

BRIDGES
HIGHWAYS

Design, Construction
Strengthening, Investigations,
Reports, Advisory Service

117 Liberty St., New York 6, N. Y.

Severud-Elstad-Krueger-Associates

Consulting Engineers
Structural Design - Supervision
Reports - Buildings - Airports
Special Structures
415 Lexington Ave., New York 17, N.Y.

Lockwood, Kessler & Bartlett, Inc.

Engineers *Surveyors*
Civil Engineering Investigations, Reports and Designs, Supervision of Construction, Cadastral, Geodetic, Topographic & Engineering Surveys, Photogrammetric Engineering and Mapping.
One Aerial Way Syosset, N. Y.

When you need a SPECIALIST in a hurry . . .

Engineering News-Record's Professional Service Section offers the quickest, most direct method of contacting consultants who may be available NOW.

General Applied Science Laboratories, Inc.

Services and Consulting in Engineering Science

Experimental and analytical services to the Engineering and Construction industries in the fields of structural vibration and stress analysis, aerodynamics, hydrodynamics, electronics and high speed computation techniques

60 Hempstead Ave., Hempstead, N. Y.
IVanhoe 6-4000

Modjeski and Masters

Consulting Engineers

Bridges and other Structures
Foundations
Highway and Expressways

300 North Sixth St. Harrisburg, Pa.
Philadelphia - Miami - New Orleans

Robert W. Lowry, Inc.

Consulting Engineers

Investigations, Reports, Supervision, Airports, Highways, Expressways, Bridges, Structures, Prestressed Design Strengthening, Soil Engineering Sewerage & Water Systems,
Principal Offices
227 Pine Street, Harrisburg, Penna.

Pennsylvania Drilling Company

Subsurface Explorations, Grouting
Industrial Water Supply
Mineral Prospecting

Large Diameter Drilled Shafts, Reports
1205 Chartiers Ave. Pittsburgh 20, Pa.

Michael Baker, Jr., Inc.

Consulting Engineers, Civil Engineers, Planners & Surveyors; Airports & Highway Design; Water Works & Sewerage Design & Operation; Aerial Topo Maps, Surveys; Reports & Investigations; Irrigation. Home Off.—Rochester, Pa. Br. Off.: Jackson, Miss.; Harrisburg, Pa.; College Park, Md.

Buchart Engineering Corp.

Consulting Engineers

Highways - Bridges - Sewer Systems
Surveys - Water Works - Dams - Reports
Supervision - Industrial - Municipal Structures

55 S. Richland Ave., York, Pa.
Lancaster, Pa. Washington, D. C.

Sprague & Henwood, Inc.

Drilling Services

Foundation Investigations, Soil Testing & Test Borings, Grout Hole Drilling & Pressure Grouting, Diamond Core Drilling

Main Office:
221 W. Olive Street, Scranton, Pa.

Branches:
1009 Western Savings Fund Bldg., Philadelphia, Pa.
11 W. 42nd St., New York, New York
345 Mt. Lebanon Blvd., Pittsburgh 34, Pa.
575 Linwood Ave., N. E. Atlanta, Ga.
Box 1416—Grand Junction, Colorado
Buchans, Newfoundland

SOUTH

Rader and Associates

Engineers - Architects

Sewage Disposal, Water Works, Ports, Airports, Bridges, Highways, Office and Commercial Buildings, Industrial Plants, Reports, Investigations, Consultations, Aerial Photography, Photogrammetry.
111 N.E. 2nd Avenue, Miami 32, Fla.

Mott Core Drilling Company

Core Borings for Buildings, Bridges Foundation Soil Tests, Highways Pressure Grouting, Dams, Mine Shafts Mineral Prospecting

826-846 Eighth Ave. Huntington, W.Va.

MIDDLE WEST

Consoer, Townsend & Associates

Consulting Engineers

Sewage treatment, sewers, storm drainage, flood control—Water supply and treatment—Highway and bridges—Airports—Urban renewal—Electric and gas transmission lines—Rate studies, surveys and valuations—Industrial and institutional buildings

360 East Grand Ave. Chicago 11, Ill.

Roy B. Everson

S.E. Consultant Since 1900

For Purification Systems as applied to Sewage Treatment, Water Works and Swimming Pool Circulating Systems.
A New System for Automatic Control

211 W. Huron St. Chicago 10, Ill.
Phone SUperior 7-3339

Toledo Testing Laboratory

Engineers—Chemists

Concrete — Soils — Asphalt

Inspection Research
Tests Development
Foundation Investigation
Borings — Diamond Drilling — Load Tests
Soils Mechanics Laboratory

1810 North 12th St. Toledo 2, Ohio

Photronix, Inc.

offering an integrated process of
AERIAL PHOTOGRAMMETRY
AND
ELECTRONIC COMPUTATION
For Engineers, By Engineers

790 King Ave. Columbus 12, Ohio

INSPECTION & TEST

The Haller Testing Labs., Inc.

140 Cedar St., N. Y. 6, N. Y.
Testing and Inspection of Construction Materials for Expressways—Airports Structures—Bridges
Complete Soils Laboratory
Test Borings—Load Tests
Boston, Plainfield, N. J. New Haven

AERIAL SURVEYS

Aerial Map Service Co.

Topographic, Planimetric, Photo Maps for Highways, Mining, Resources, Construction, City Maps, Tax Maps, Photo Geology, Tellurometer Radio Distance Measurements, Triangulation, Electronic Computation.

1016 Madison Ave., Pittsburgh 12, Pa.

American Air Surveys, Inc.

AERIAL TOPOGRAPHIC MAPS & AERIAL PHOTOS FOR

• Highways • Airports • Power & Pipe Lines • Railroads • Mining • All types construction • Stockpile Inventories

907 Penn Ave. Pittsburgh 22, Pa.
Reps—Chicago—Huntington, W. Va.

Clyde E. Williams & Assoc., Inc.

Aerial Photos - Enlargements
Topographic Maps

At large and particular scales to suit various engineering needs, e. g. Airports, City Sewer & Water, Power & Pipe lines, Reservoirs, Subdivisions, Highways, Bridges & Inventories.
313 W. Colfax Ave. South Bend, Ind.

THE CONSULTING ENGINEER

By reason of special training, wide experience and tested ability, coupled with professional integrity, the consulting engineer brings to his client detached engineering and economic advice that rises above local limitations and encompasses the availability of all modern developments in the fields where he practices as an expert.

Classified Advertising Index

Albert Pipe Supply Co. 87
Ambursen Dam Co., Inc. 87
Associated Pipe & Fitting Co. 87
Brown & Root, Inc. 89
Buff 88
Capitol Engineering Corp. 85
Concrete Equipment Co. 89
Conmaco, Inc. 89
Connors Steel Div. of H. K. Porter Co., Inc. 87
Cranes Inc. 89
Cuyahoga Wrecking Co. 86
Dalton Supply Co. 88
Dorr-Oliver Inc. 85
Forsythe Equipment Co., Inc. 89
Gillis & Co. 87
Greenpoint Pipe Supply Corp. 87
Indiana-Ohio Pipe Co. 87
Lee & Co., Inc., Robert E. 86
Lubrecht III, William 89
Mack Trucks, Inc. 88
Madison, Wisconsin, City of. 85
Manitowoc-Forsythe Corp. 89
Memphis Equipment Co. 87
Mississippi Valley Equipment Co. 89
N. E. Industries, Inc., The. 88
National Blue Print Co. 88
Pamar Inc. 89
Parsons Co., The 85
Pennsylvania, Commonwealth of. 85
Port of New York Authority, The. 86
Putchat, Nathan 86
Richardson, Gordon & Associates. 85
Seaboard Equipment Co., Inc. 87
Seaboard Steel 89
Sherman Crane Co., Roger. 89
Smith Inc., L. B 89
Stanhope Inc., R. C 89
Swabb Equipment Co., Inc., Frank 87
Telephone Engineering Co. 86
Tully Co., John C 88
Warren-Knight Co. 88
Western Contractor's Supply Co. 89
Western Services Corp. 87
Whisler Equipment Co. 89
Wilson Engineering Corp. 86

ADVERTISERS IN THIS ISSUE

Allied Materials Corporation 14
Allis-Chalmers 1
Allison Div., General Motors Corp. 58
Armco Drainage & Metal Products, Inc. ..... 2nd Cover
The Asphalt Institute 51
Atlas Copco 55
Automotive & Aircraft Div., American Chain & Cable Company 44

Bethlehem Steel Co. 17
Borden Metal Products Co. 22
Broderick & Bascom Rope Co. ..... 4th Cover
Business Week 16
A. M. Byers Company 53

J. I. Case Co. 45-48
Clark Equipment Co., Const. Mchy. Div. 73, 75, 77
James B. Clow & Sons 64-65
Clyde Iron Works, Inc. 63
Concrete Reinforcing Steel Institute 91

Dodge Manufacturing Corporation 50
Richard Dudgeon, Inc. 91

The Eimco Corporation ..... 3rd Cover
Elgood Concrete Forms, Corp. 69
Erwin-Newman Co. 76

Fairbanks, Morse & Co. 69
L. B. Foster Co. 20
Fruehauf Trailer Company 33

Goodall Rubber Co. 13
B. F. Goodrich Company, Tire Div. 5
Griffin Wellpoint Corp. 61
Gunite Concrete and Construction Co. 91

Heltzel Steel Form & Iron Co. 78
Homelite Div., Textron Inc. 10

Inland Steel Products Company 8

Jersey Bolt & Spike Corp. 61
Johns-Manville Corp. 15

The Kinnear Mfg. Co. 52

LeRoi Div., Westinghouse Air Brake Co. 66
LeTourneau-Westinghouse Co. 38-39, 41
Lock Joint Pipe Co. 18

The R. C. Mahon Company 49
Mississippi Valley Structural Steel Co. 11
Mobile Drilling, Inc. 62
Morris Machine Works 12

Noble Company 68

Pacific Crane & Rigging Co. 62
Phoenix Bridge Company 69
Portland Cement Association 29

The Readers Digest Assn. Inc. 3
Republic Steel Corporation 56-57
Richmond Screw Anchor Co., Inc. 2
Rockwell-Standard Corp., Universal Joint Div. 4

Spencer, White & Prentis, Inc. 69
John W. Stang Corp. 52
Stow Manufacturing Co. 79
Superior Concrete Accessories, Inc. 40
Sylgab Steel & Wire Corp. 54

Townsend Company 70

Underpinning & Foundation Co., Inc. 91
The Union Metal Mfg. Co. 30-31
U. S. Steel Corp. 6-7

Yuba Consolidated Industries, Inc. 9

Professional Services 90

CLASSIFIED ADVERTISING

F. J. Eberle, Business Mgr.

Employment Opportunities 84-85

Notices
Proposals 81-83

Equipment
(Used or Surplus)
(For Rent, Sales Wanted) 84-89

U.F.C. makes tough jobs look easy!

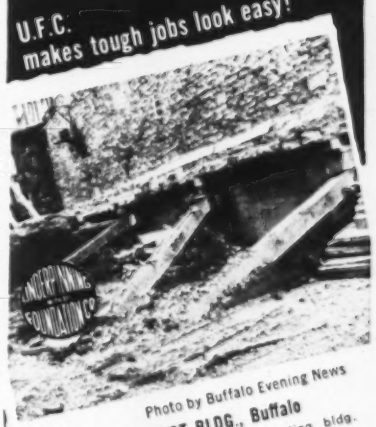


Photo by Buffalo Evening News

MARINE TRUST BLDG., Buffalo

Braced and underpinned 7 story printing bldg. by jacking 86 hercules pipe piles, prior to installation of Marine Trust Bldg. deep pile foundations. John W. Cowper Co., Inc., General Contractors.

Service Experience

✓PILING ✓FOUNDATIONS
✓SHORING ✓UNDERPINNING
✓CONSULTATION & DESIGN

UNDERPINNING & FOUNDATION CO., INC.
155 E. 44th St., New York 17, N. Y.
General Contractors For More Than 50 Years
Inquiries are invited — no obligation

The QUICKEST way to get
Reinforced Concrete Designs Revised 1959...
Second Edition! Third Printing!

Bring your reference library up to date. Revised in 1959, this valuable tool will provide you more Reinforced Concrete Designs, all worked out to the latest A.C.I. Building Code. Send check or money order for your copy, today.

Prepared by the Committee on Engineering Practice

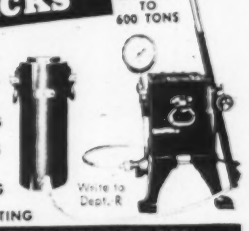
$6.00 postpaid

10 Day, Money Back Guarantee
NO C.O.D. ORDERS

CONCRETE REINFORCING STEEL INSTITUTE
38 S. Dearborn St. (Div. D), Chicago 3, Illinois

DUDGEON HYDRAULIC JACKS
SALES RENTALS
• CAPACITY TO 600 TONS

FOR:
PILE TESTING
•
UNDER-PINNING
•
BRIDGES
•
PIPE PUSHING
•
SOIL TESTING



Write to Dept. R

RICHARD DUDGEON INC.
789 BERGEN ST. • ST 9-4040 • BROOKLYN, N. Y.

GUNITE
Since 1915
CONCRETE
SAND AND CEMENT "Placed by Air"

GUNITE
BLO-CRETE WET-CRETE
LINING, ENCASING, FIREPROOFING, REPAIRING

Send for our new bulletin No. 20 of actual photographs, information and detailed specifications.

GUNITE CONCRETE & CONST. CO.
1301 WOODSWETHER RD., KANSAS CITY 5, MO.
452 W. Chicago Ave., Chicago 10, Ill.
1004 Market St., St. Louis 1, Mo.
3206 Houston Ave., Houston 9, Texas
Los Angeles - Milwaukee - Twin Cities
Denver - New Orleans

Editorials

Opportunity Fading

Less than 1 out of 4 of the 43,000 members of the American Society of Civil Engineers has made a contribution to the campaign to finance a great new United Engineering Center in New York. Such a poor showing, unless greatly improved, cannot help but reflect adversely on the engineering profession and its claims to leadership and greater public recognition.

For the usual type of fund-raising campaign, only 25% support may be acceptable, but it is shockingly low for a project involving such a high degree of professional responsibility and plain self-interest as this one. Not only is the U.E.C. badly needed to replace the present inefficient and worn-out headquarters of the nation's principal engineering societies, it will also—by its size, modernity and prominent location—symbolize the engineer's important place in the world and suggest to all and sundry that the importance is deserved.

For any engineer to pass up the opportunity to have a part in this project will almost certainly cause him regrets in later years as he benefits from the advantages that he let someone else provide. Nor can these advantages be so great as otherwise since professional strength and solidarity are bound to suffer when a few are required to carry the responsibilities of the many. Actually, too, the responsibilities of the individual engineer are greatly lessened through the generosity of American industry in assuming half the entire cost of the project.

The fact is that the opportunity to participate in the financing of the United Engineering Center is fading fast. Over 70% of the $10 million required has already been pledged, plans are complete, the contract has been awarded, and the construction is scheduled to start in October. It is, therefore, no longer a question of whether the project will go ahead, but of who and how many will be privileged to have a part in it.

The A.S.C.E.'s modest quota of $800,000 has been met to the extent of $560,000 by the 9,600 members who have grasped the opportunity to express pride and confidence in the profession by a contribution. Moreover, many of these same individuals have been discharging a further responsibility by working on fund-raising committees of the society's local sections to make it easy for every member to contribute. The result is that the quota deficit becomes steadily less, along with the opportunity to make even the minimum contribution of about $25, let alone one that reflects an individual's honest assessment of his true debt to the profession and his ability to discharge it.

Most civil engineers who regard their calling as a profession are members of the American Society of Civil Engineers. Those who have contributed to the United Engineering Center fund can continue this regard with considerable satisfaction. It is doubtful if the much larger number who are in danger of missing their opportunity to have a part in the project can be so fortunate. This is not a good prospect either for themselves or for engineering as a profession.

The Dam Stood

From obscurity to fame in minutes—that was the lot last week of Hebgen Dam, a property of the Montana Power Co., located just west of Yellowstone Park. In withstanding an earthquake of major intensity, the 300,000-cu-yd-earth embankment, rising 87 ft above the streambed, provided dam designers with one of the very few such full-size tests on record. Although badly shaken and even visibly displaced, the embankment maintained its integrity, saving many lives as well as the company's investment.

Proponents of earth, and also rockfill, dams have long maintained that these types of structures are not only inherently stable, but have the ability to adjust to foundation movement or the application of unusual forces. The performance of Hebgen Dam lends support to this claim, even though its use of a heavy concrete corewall of a type now obsolete makes the dam somewhat special.

Built in 1915, when earthdam design was much less scientific than now, Hebgen Dam could not have contained any special provisions to resist earthquake stresses, although the designers likely considered them. Even today, designers of such structures face somewhat the same situation. Masonry dams, of massive or arch type, can be proportioned or strengthened to resist the acceleration forces of major earthquakes, which are on the order of one-tenth to two-tenths of gravity. The earthdam designer, however, has less opportunity to use such calculable means of strengthening. His best defense has been to make his section amply large to resist the hydrostatic head, amply long to keep the foundation stresses low and the hydraulic gradient from intersecting the downstream face and amply flat to be safely under the natural angle of repose of his materials. After that he must rely on good construction methods and the selection of good materials to assure a sound and stable structure.

The Hebgen Dam experience does not positively prove that any properly designed and constructed earthdam will stand in a major earthquake. But it helps to support that viewpoint. Its past history and post-earthquake condition should now be carefully studied and documented to reveal, if possible, any crumbs of knowledge that can be used to improve earthdam practice. In the meantime, designers can continue, with some increased confidence, to follow methods that modern science and past experience indicate will produce a stable, watertight earth or rockfill embankment.

COMPARE THE NEW

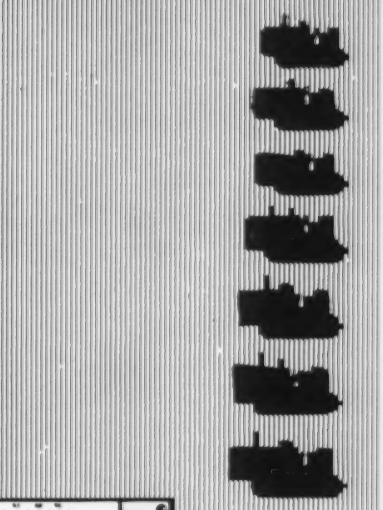
EIMCO 123

FRONT END LOADER! CHECK THE

FACTS

NOT THE CLAIMS

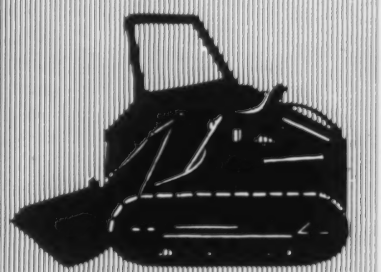
	EIMCO 103	CAT D-4	CAT D-6	AC HD-6	AC HD-11	INT. TD-9	INT. TD-15	CASE 1000
Maximum Drawbar Pull, Pounds (zero track slippage)	33,600	10,700	19,000	15,485	21,980	13,240	23,730	24,000
Torque Converter	Yes	No	No	No	No	No	No	Yes
Master Clutch	No	Yes	Yes	Yes	Yes	Yes	Yes	No
Power shift transmission on all speeds, with oil-cooled metallic clutches that never need adjustment	Yes	No	No	No	No	No	No	No
Independently reversible track	Yes	No	No	No	No	No	No	Yes
Hydraulic track take-up	Yes	No	No	No	No	No	No	Yes
Heat-treated alloy steel grouser shoes, keyed to the track links	Yes	No	No	No	No	No	No	No
One-piece heat-treated alloy steel track rollers, tapered roller bearings	Yes	No	No	No	No	No	No	No
Equalizer bar of heavy duty heat-treated cast alloy steel, allowing full oscillation of crawler tracks with all attachments	Yes	No	No	No	No	No	No	No
Constantly running power take-off drives, front and rear, to standard SAE specs, with rear take-off not affected by track operation, and independent hydraulic pump drive allowing simultaneous use of hydraulic, winch and hoist accessories	Yes	No	No	No	No	No	No	No
Front operator's seat for full visibility	Yes	No	No	No	No	No	No	No
Ability to operate forward and backward on up to 90% slopes	Yes	No	No	No	No	No	No	No
Tractor guaranteed for one full year of single shift service	Yes	No	No	No	No	No	No	No



FOR PROOF OF EIMCO 123 SUPERIORITY

FRONT END LOADERS	EIMCO 123	CAT 955	CAT 977	AC HD6G	AC HD11G	INT. 9K3	INT. 15K3	CASE 1000
WEIGHT, POUNDS	25,000	22,470	34,915	19,600	32,000	19,985	33,235	21,800
ROCK BUCKET, CU. YARDS	1¼	1.1	1.8	1½	2¾	1½	2¼	N.A.
ENGINE HP	100	70	100	72	111	71	115	100
TRACK GAUGE, INCHES	60	60	74	60	74	60	74	60
SHOE WIDTH, INCHES	17	15	18	13	16	15	18	16
LENGTH OF TRACK, INCHES	88	81⅛	105⅝	83⅞	106¾	75	98½	79
TRACK AREA, SQ. INCHES	3,000	2,450	3,814	2,180	3,410	2,250	3,546	2,530
GROUND PRESS., PSI	8.3	9.2	9.2	9.0	9.4	8.9	9.4	8.6
LIFT HEIGHT TO HINGE PIN, INCHES	144	128	144	120	139	125	144	134
DUMP HEIGHT, INCHES	115	100	114	96	114	102	113	101
DUMP REACH, INCHES	44	38½	39	31	37	36	37	40
MAX. DUMP ANGLE, DEGREES	63	50	50	45	52	60	58	50
MAX. PUMP PRESSURE, PSI	1,200	1,450	1,450	1,000	1,300	1,500	1,730	1,450
PUMP, GPM	75	43	52.5	39	72	N.A.	N.A.	30
LIFT TIME, SEC.	7.5	7.0	9.1	9.0	9.0	7.7	9.0	7.5
DUMP TIME, SEC.	3.0	4.0	5.0	4.0	4.0	N.A.	N.A.	1.6
GROUND CLEARANCE, INCHES	17	13⅝	19¼	11⅜	13⅜	9	18	16

N.A. — not available



Information is from manufacturer's data and other sources believed to be reliable, but cannot be guaranteed.

IT'S A FACT . . . not a claim . . . that here is a MODERN line of tractors that makes all other crawler-tractors old-fashioned!

Other exclusive features includes Unitized "Stress Flow" Construction, for far greater strength and rigidity; Self-cleaning Air Cleaner that completely eliminates ordinary routine cleaner maintenance and others, far too numerous to list here. Write for details and specifications on all the advanced engineering features of the modern Eimco 103 line of crawler tractors.

AVAILABLE IN FOLLOWING MODELS:

103 — TRACTOR AND DOZER
123 — FRONT END LOADER
133 — STEEL MILL FEL
143 — LOG LOADER

"ADVANCED ENGINEERING AND QUALITY CRAFTSMANSHIP SINCE 1884"

THE EIMCO CORPORATION

EIMCO

TRACTOR LOADER DIVISION

634 SOUTH 4TH WEST
SALT LAKE CITY, UTAH — U.S.A.

EXPORT OFFICE: 51 - 52 SOUTH STREET, NEW YORK, N. Y.
BRANCHES AND DEALERS IN PRINCIPAL CITIES THROUGHOUT THE WORLD

B-454

TRIED 3 BRANDS OF WIRE ROPE

Yellow Strand "POWERSTEEL" wins again!

Look at that solid rock face—170' of shoot and shovel down through that tough Tennessee rock. It's a "natural" for a shovel equipped with Yellow Strand POWERSTEEL. That's what Haynes Construction Co., Inc., Bluefield, West Virginia, has found out, too! James J. Chase, General Supt., says, "Out of the three competitive ropes, POWERSTEEL has given the best service on this job. It nets more yardage per hoist rope."

So, to keep its work on the Federal Interstate Highway in Putnam County rolling on schedule, Haynes has equipped both of its shovels with 1¼" POWERSTEEL.

Haynes has proved that it gets more yardage at lower cost with Yellow Strand POWERSTEEL. Can tougher, stronger, shock-and-wear resistant POWERSTEEL do as much for you? It will cost you nothing to find out—just call your Yellow Strand Distributor today! Broderick & Bascom Rope Co., 4203 Union Blvd., St. Louis 15, Mo.

Yellow Strand

WIRE ROPE SLINGS CLIPS